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ABSTRACT

Findings of six projects conducted by the National Center on Effective Secondary Schools are presented in this report. The center's mission is to improve the academic achievement of all students, focusing on the disadvantaged and less successful. The first project described is the Clearinghouse on Academic Achievement, which presents an updated bibliography and synthesis of research relevant to school improvement. A second study, "Noninstructional Influences on Adolescent Engagement and Achievement," examines the ways in which family background, peer groups, workplace, and extracurricular activities affect student achievement and engagement. "The Stratification of Learning Opportunities in Middle and High School" explores ways in which student opportunities to learn through authentic discourse may mediate the effects of tracking and ability grouping on student achievement. Strategies for the promotion of higher order thinking in high school social studies and their constraints are investigated in "Higher Order Thinking in the High School Curriculum." Project 5, "Research on Programs and Policies To Serve At-Risk Students," studies special programs and community interventions to improve achievement and engagement of at-risk students. The sixth project, "Alternative Structures and the Quality of Teachers' Worklife," analyzes the conditions and structures that promote teachers' engagement in their work. Two figures and individual bibliographies are included, as well as agency information on dissemination and management procedures. Appendices include lists of publications and advisory groups. (LMI)

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National Center on Effective Secondary Schools

Final Report on OERI Grant No. G-008690007

December 1, 1985 - November 30, 1990

Fred M. Newmann, Director

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Wisconsin Center for Education Research
School of Education, University of Wisconsin—Madison

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FINAL REPORT

December 1, 1985-November 30, 1990

NATIONAL CENTER ON EFFECTIVE SECONDARY SCHOOLS

Wisconsin Center for Education Research
University of Wisconsin-Madison
School of Education
1025 West Johnson Street
Madison, WI 53706

March 20, 1991

Fred M. Newmann, Director

This is a final report of research findings, accomplishments, and publications of the National Center on Effective Secondary Schools (Grant # G-008690007) supported by the U. S. Department of Education, Office of Educational Research and Improvement, and by the Wisconsin Center for Education Research, School of Education, University of Wisconsin-Madison. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the supporting agencies.

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OVERVIEW

Since December 1985, the National Center on Effective Secondary Schools has conducted approximately 30 studies to learn how high schools can enhance student engagement and thereby boost student achievement. The research included literature reviews, secondary analyses of existing data, original conceptual-analytic work, and original empirical studies that have taken Center researchers into high schools across the nation.

The mission of the Center was to learn how secondary schools can improve the academic achievement of all students, with special attention to the needs of disadvantaged and less successful students. The research was guided by three central assumptions. First, the conception and measurement of appropriate forms of achievement are themselves problematic; the mission should not be construed simply to increase student scores on tests currently in use. Second, to improve academic achievement, we must first understand how to increase student engagement in academic work. And third, although policies and conditions originating beyond the school have substantial impact on student achievement, more attention must be given to levers at the school site; that is, to the strategies that teachers and administrators can use to alter conditions in their own schools to increase students' engagement and achievement. The mission was pursued through six main projects:

1. **Clearinghouse on Academic Achievement.** The Clearinghouse provided an updated bibliography and syntheses of research relevant to school improvement consistent with the mission.

2. **Noninstructional Influences on Adolescent Engagement and Achievement.** A study of the ways in which adolescents' experiences in the family, the peer group, the workplace, and extracurricular activities affect their engagement and achievement in school.

3. **The Stratification of Learning Opportunities in Middle and High Schools.** A study of the ways in which student opportunities to learn through authentic discourse may mediate the effects of tracking and ability grouping on student achievement.

4. **Higher Order Thinking in the High School Curriculum.** A study of the ways in which higher order thinking can be promoted in high school social studies and of the barriers that inhibit it.

5. **Programs and Policies To Serve At-Risk Students.** A study of special programs and substantial community interventions to improve engagement and achievement for students at risk.

6. **Alternative Structures and the Quality of Teachers' Worklife.** A study of the quality of high school teachers' worklife and the conditions and structures that promote teachers' engagement in their work.

The Center maintained relationships with a 12-member National Advisory Panel, a seven-school High School Advisory Network, several cooperating professional organizations, as well as OERI centers and laboratories.

The Center also completed a project on the **Assessment of Academic Achievement** that reviewed the limitations of conventional testing and offered a new theory of authentic achievement and examples of ways to assess it.

This final report consists of an interpretive summary of the entire research program, reports from each of the main projects, a summary of dissemination activity, a description of management procedures, and a list of publications by project. A more detailed analysis of the Center's findings for a general audience will be available in Newmann (forthcoming).

Reference

Newmann, F. M. (Ed.). (forthcoming). Student engagement and achievement in American high schools. New York: Teachers College Press.

INTERPRETIVE SUMMARY

Moving Beyond "Effective Schools": The Problems of Student Engagement and Achievement

Since the early 1980s, America's high schools have been besieged with studies, critiques and proposals for reform. Major items of concern include academically weak curriculum, neglect of problem-solving and higher order thinking, inequitable effects of curriculum tracking, professionally demeaning working conditions for teachers, and, in many schools, dropout rates that exceed 50% for poor minority students. Reports of national test scores and international comparisons continuously announce low levels of high school student achievement.

Beginning in the 1970s research on "effective schools" (Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979; Edmonds, 1979) tried to identify the variables through which some elementary schools enabled poor minority students to achieve at levels comparable to middle class white students on standardized reading and math tests. Strong leadership by the principal, a school-wide instructional focus on basic skills with continuous monitoring of student achievement, and high expectations by teachers were some of the key factors.

Following a body of research that emphasized the dominant influence of social background on student achievement (Coleman, Campbell, Hobson, McPartland, Modd, Weinfeld, & York, 1966; Jencks, Smith, Acland, Bane, Cohen, Gintis, Heyns, & Michaelson, 1972), "effective schools" research offered hope that schools could make a difference. The slogan was quickly appropriated to educational research and practice that extended well beyond the original issue of how elementary schools serving poor minority students might enhance standardized test scores to middle class levels. In 1985 the federal government funded two five-year Centers to conduct research on effective schools—one dealing with elementary and middle schools, another dealing with high schools.

The National Center on Effective Secondary Schools began with a mission broader than boosting the achievement of low-income minority students on standardized tests. Our mission extended the "effective schools" framework in four ways. We were concerned with students who do not succeed in school, especially with low-income students of color who are disproportionately represented in this group. Ultimately, however, we were interested in increased success for all students.

Second, we believed that success in high school should not be judged primarily by the tests conventionally used in large scale assessments. Such tests measure only limited forms of human accomplishment; they fail to test much of what schools try to teach; and, when norm-referenced and standardized, they make it impossible for half of the students to succeed. Other indicators of school success are important, such as reduced dropout rates, increased enrollment in advanced coursework or in extracurricular activities, and projects that reflect more authentic forms of intellectual performance.

Further, we doubted that high schools could be improved simply by identifying a list of variables related to student achievement and persuading schools to work on each item in the list. Instead, we felt that educational interventions would be powerful only to the extent that they were grounded in coherent theory that explained how and why certain approaches

to instruction, curriculum and school organization were more likely to produce favorable student outcomes than others.

Finally, research literature on American high schools, along with our conversations with high school teachers, suggested to us that the effective schools literature, and indeed most of the rhetoric about school improvement, had neglected the most salient issue for both teachers and students each hour of the school day. The most immediate and persisting issue for students and teachers is not low achievement, but student disengagement.

For teachers, the challenge is how to get students to do academic work and to take it seriously enough to learn; for students the challenge is how to cope with teachers' demands so as to avoid boredom, to maintain self-respect and, at the same time, to succeed in school. As we explain further in several chapters, meaningful learning cannot be delivered to high school students like pizza to be consumed or videos to be observed. Lasting learning develops largely through the labor of the student who must be enticed to participate in a continuous cycle of studying, producing, correcting mistakes and starting over again. Students cannot be expected to achieve unless they concentrate, work, and invest themselves in the mastery of school tasks. This is the sense in which student engagement is critical to educational success; to enhance achievement, one must first learn how to engage students.

The point seems almost too obvious to mention, but too many of us (educators and parents) have learned the hard way that it cannot be taken for granted. Student disengagement posed less of a problem in earlier times when high schools served more select populations of students, when families offered more cohesive, sustained support for students' investment in schoolwork, and when youth had fewer opportunities for activities that now compete with schoolwork. Today, however, the schools' ability to engage students is constantly tested by increased cultural diversity in the student body, by large proportions of students who need special forms of care that school staff have not been expected to offer, and by a host of powerful distractions that compete for students' time and emotional investment (for many students these "distractors" involve substantial responsibilities for family care).

The ultimate concern of our work was student achievement, but the first, most fundamental problem was to learn more about how to engage high school students in schoolwork. To study how to enhance student engagement, the Center encouraged diverse perspectives represented in five projects. Students at risk present the most visible symptoms of disengagement—numerous programs have tried to address them, and so one of the projects studied experiences and effects of alternative programs and policies to assist at-risk students. Concerned that the high school curriculum usually offers few opportunities for critical thinking or problem-solving, and hypothesizing that challenging students to use their minds would enhance engagement, another project studied how to increase higher order thinking in social studies. A third project developed a model of authentic instructional discourse that included criteria for the kind of writing, reading, and talking most likely to promote engagement and achievement. It examined the extent to which grouping and tracking policies affect student opportunities for authentic discourse. Recognizing teachers as key players for students, a project on teacher quality of worklife studied how organizational features of the school contribute to teachers' engagement and success in teaching. A final project studied high school mainly from the students' perspectives to learn how engagement and achievement

might be influenced by student experiences in four noninstructional settings; namely, the family, peer group, extracurricular activity, and part-time work.

The projects investigated different aspects of the engagement and achievement problems—through literature reviews, analyses of existing data sets, and new studies of students and staff in 32 middle and 62 high schools throughout the United States. Because research on the nature and measurement of student engagement has only just begun, and because of continuing controversy on what forms of achievement ought to be assessed and what forms can be assessed within reasonable costs, it was not possible nor even advisable for all projects to use a common set of indicators of student engagement and achievement.

Before presenting results from each project, we wish to explain why the Center did not use a common set of tests or other indicators of student achievement across all projects. The simple reason is that a good set of indicators is not available. In spite of recent interest in national goals for student achievement, there exists no set of indicators for student achievement in American high schools that is considered valid by researchers and the public at large and that also can be used to compare the progress, from high school entry to exit, of students from different schools and with different educational needs.

Many indicators have been used to measure the accomplishments of students and schools: attendance (dropout), credits earned, grades, performance on several types of tests—standardized achievement tests; college admission tests; competency tests constructed by schools, districts, states, and the national assessment; teacher-made tests for specific courses. Unfortunately, each of these indicators is deficient on one or more of the following grounds: failure to indicate what the student actually knows or can do; neglect of important educational goals such as creativity, interpersonal sensitivity, psychological development, civic responsibility, or critical thinking; perpetuation of cultural biases that unfairly restrict educational opportunity; providing information that has little relationship to success beyond school; and failure to assess the specific curriculum taught within each high school.

Indicators of achievement that avoid these faults cannot be constructed by specialists in testing and measurement alone. Such a project requires reexamination of the very goals of schooling that, in a democracy, demands broad participation of educators and the public at large. The challenge is particularly perplexing in a society that now encounters two underlying and opposing social forces. On the one hand, we face the homogenizing aspects of modernization—accelerating centralization, nationalization, globalization of experience. These, combined with a commitment to equity, suggest the need to evaluate educational achievement through common national or even international standards. On the other hand, in the United States we face the diversifying forces of increased cultural pluralism and economic polarization. These, combined with a long-standing commitment to preserve the autonomy of local communities to determine school goals, support the prospect of diverse, rather than common, educational standards across schools. As a nation, we are only beginning to address the question of what standards for high school achievement should be applied in common and what standards might be unique to different groups of students. To achieve agreement on this issue and to develop instruments that remedy other problems mentioned above will require an investment of funds and energy far beyond the resources previously allocated to the education research centers.

Research on high school achievement suffers not only from an inadequate system of indicators. Even using data from currently available tests, research is inconclusive on the size of achievement gains from high school entry to exit. Unfortunately, there is almost no information on student achievement gains attributable to United States' high schools. The most systematically gathered information from a national sample recorded student performance only at the end of 10th and 12th grades.[1] The tests included vocabulary, reading, mathematics, and science—in multiple-choice format. The average magnitude of these two-year gains was only 1 to 2 items on tests ranging from 20 to 40 items.

In two years of school, students presumably spend about 2000 hours or the equivalent of fifty 40-hour weeks on schoolwork.[2] Considering the amount of time that students spend in educational activity, we might conclude from these results that (a) high schools have no significant impact on achievement; (b) they must have a far greater impact than what is measured by the tests; or (c) the impact is unclear unless we know more about the items on which progress is made. Learning four new words, for example, may be educationally insignificant, but perhaps learning how to solve just one algebraic equation reflects a major accomplishment.

Lacking a valid system of achievement indicators, realizing that current tests often reveal only marginal or inclusive gains attributable to high school education, and believing that student engagement should be attacked directly as the most salient issue, we, therefore, avoided Center-wide emphasis on a common set of tests or other indicators of student success. Instead, projects in the Center were encouraged to develop a variety of indicators and to learn from existing assessments used in the schools. This strategy did not permit the diverse projects within the Center to formally test a comprehensive theory of how specific school practices and policies improve student achievement through enhancing engagement. Each project has, however, produced findings that contribute both to the development of theory and to the improvement of practice on the central problem.[3]

Individual projects will later report a number of findings. For example, developing a sense of school membership is critical to student engagement, especially for students at risk. Some teachers and departments succeed in promoting higher order thinking even with low achieving students. Parents, peer groups, extracurricular activities, and part-time work all have effects on student achievement that could be influenced by schools. Several schools

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[1]This is the High School and Beyond (HSB) project of the National Center on Education Statistics that tested sophomores and seniors from 1000 high schools in 1980 with succeeding two-year follow-ups. By 1992, a more recent project of the Center, the National Education Longitudinal Study of 1988 (NELS:88), will provide data on student gains over four years in high school. Better longitudinal data may also be available in the 1990s from the National Assessment of Educational Progress.

[2]Assuming 180 days (36 weeks) of school per year, 5 hours of classes per day, 3 hours per week of homework.

[3]A more detailed report of the Center's research will be available in Newmann (forthcoming).

have developed unique structures that promote high degrees of teacher collaboration and collegiality that, in turn, enhance teacher engagement—especially with low achieving students. The quality of instructional discourse varies considerably between high and low ability classes and helps to explain students' achievement, independent of students' ability group location.

We begin, however, with an interpretive summary. This is the Center director's attempt to integrate findings from separate projects and also to move beyond the findings toward broader analysis of the challenges ahead. Some of the conclusions confirm previous knowledge, and some advance it—both by offering new empirical evidence and also by suggesting ways of conceptualizing the critical issues. In this interpretation, the Center's conclusions are organized into five topics: student engagement, school culture, curriculum/instruction, organizational structures, and change processes.

Student Engagement

Based on insights from psychology, sociology, and studies of schooling, we developed a theory of student engagement. It assumes that all people have an underlying need to develop competence and that the challenge of formal schooling is to channel this need toward the development of academic knowledge and skills that might not otherwise be pursued. To enhance engagement in academic work, it is necessary to strive for particular qualities both in the social setting in which the work is conducted and in the nature of the tasks that students are asked to complete. These foundations are summarized in Figure 1. Each of them is explained in more detail in Newmann (forthcoming).

Projects of the Center studied different aspects of student engagement, and their findings are integrated into the interpretive summary that follows.

School Culture

High school students' engagement and achievement are affected profoundly by experiences and messages that cannot be identified simply by listing what is prescribed in the formal curriculum, what students do in their classes, and what is tested. Instead, the effects of school activities are best understood as cultural phenomena; that is, as outcomes that evolve through complex webs of institutionally sanctioned meanings, values, and incentives or disincentives for particular kinds of behavior. Almost all educators would agree with this, but debate continues on which parts of school culture have the most impact on engagement and achievement and which can be most easily improved through deliberate action by school professionals, policymakers, or parents.

The most salient quality from the students' point of view is sense of school membership. Achieving this cultural quality requires that schools communicate clear, noncontradictory purposes as the goals of education; that they treat students fairly; that they offer reliable personal support to help students undertake the hard and risky work of school; that they communicate high expectations and feel accountable for the success of all students; and that these responsibilities be discharged through a climate of care that shows respect for all, regardless of the level of performance one demonstrates.

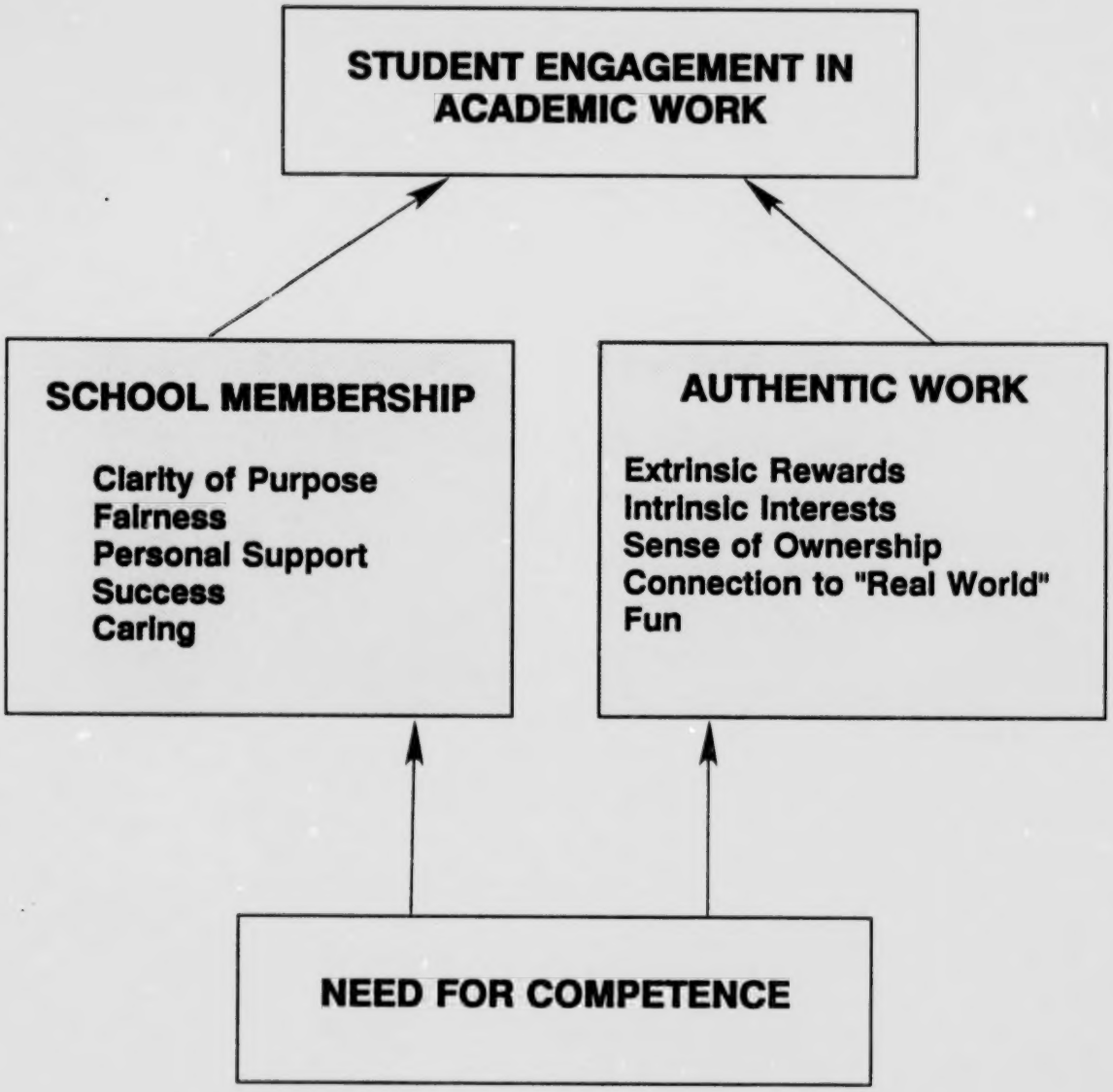

Figure 1.

Factors That Influence Student Engagement in Academic Work

Each of these dimensions of membership may call for attention to separate norms, behaviors, policies, and practices, but it is important not to lose sight of the underlying principle of inclusion as the basis of membership. This means listening to students, trying to comprehend their own meanings, and responding in ways that incorporate their perspectives, concerns, and interests—many of which originate from and concentrate on experiences beyond the formal tasks of classroom instruction.

The membership principle has multiple implications for school practice. These could include curriculum revision to study cultural groups previously omitted from history courses; having teachers consider how to elicit ideas from students that might help the teachers to understand a work of literature; teaching teachers how to give students rigorous criticism that also maximizes students' sense of competence and success; establishing mentor or advisory programs that assure each student long-term support from adult teams or a single adult; sponsoring recognition programs that honor a variety of student accomplishments; building systems of governance that give students more meaningful voice in matters of policy and rule enforcement; and developing alternatives to ability grouping to enhance membership for low achieving students.

Since school culture is profoundly affected by students' lives in the surrounding community, building a culture of inclusion also requires initiatives to affect students' noninstructional experiences. Attempts to engage students will require the cooperation of parents, employers, other influential adults and agencies. These would include programs to increase parents' sense of membership by encouraging their involvement in school activities and by assisting them with parenting styles that support student engagement; policies to increase participation of marginal student groups ("outcasts," "druggies," "loners") in extracurricular activities and programs to help athletic activities reinforce norms for academic achievement; counseling and support groups to help students resist peer pressure destructive to academic engagement and to help them change crowd membership; rules, incentives, and advising to put reasonable limits on the time students spend in part-time work and partying so they can give more attention to school. Schools and communities have a long way to go in joining forces to establish a sense of meaningful membership for those on the margins of the U.S. mainstream.

We emphasize a culture of student inclusion not to diminish the authority of educators, but to highlight the point that educators are more likely to boost engagement and achievement if they use their authority in ways that respond more sensitively to students. Further implications of this will be discussed under curriculum and instruction.

It is not enough to examine school culture from the students' point of view. Since teachers are the most important people in schools for boosting student engagement and achievement, a critical task for school culture is to nurture teachers' commitment and competence to teach all students. Syntheses of research attest to the benefits of a communal culture for both students and teachers (Bryk & Driscoll, 1988; Bryk, Lee, & Smith, in press). Consistent with and extending this finding, our empirical studies found that successful schools were characterized by several aspects of faculty culture: strong faculty consensus on the school's mission with high expectations for all students; collegial help focused on professional issues; respect and caring for students; demands among teachers for active problem-solving,

experimentation, and entrepreneurship to develop new programs; and peer pressure among teachers to work hard for students and the school. Thus, just as a culture of school membership builds student engagement, so does a culture of communal professionalism nurture the will and skill of teachers to teach effectively.

How can the norms of student membership and communal professionalism be developed in high schools? Conclusions on organizational structures and the process of change described below offer some guidelines, but first let us consider how the core of schooling—what is taught—and how it is taught affects student engagement and achievement.

Curriculum and Instruction

Rather than specifying content and methods appropriate for specific subjects of study, the Center's research searched for principles for the design of curriculum and instruction that would presumably increase student engagement and achievement in all subjects. To maximize the power of this inquiry we examined qualities of work both in and out of school that tend to generate human interest and investment in doing one's best. In elaborating a conception of student engagement (Figure 1), we explained the importance of designing instructional tasks that provide, to the extent possible, extrinsic rewards, intrinsic interest, sense of ownership, connection to the "real world," and fun.

These criteria embrace a variety of other recommendations for the reform of curriculum and instruction. For example, recommendations to involve students as active interpreters who construct knowledge and reason about the meaning of information, rather than simply as reproducers of knowledge fragments, are equivalent to emphasis on higher order thinking. Interpretive tasks give students more ownership over the content. Studying topics in depth offers the opportunity to see relationships and is, therefore, likely to be intrinsically more interesting than racing through expository material to cover a wide variety of topics. Our studies indicated that students were more engaged when they were expected to be active interpreters of knowledge, rather than passive listeners, and when they were involved in in-depth study rather than superficial coverage of information.

Unfortunately, this kind of instruction rarely occurs. In a study of ninth-grade literature instruction, less than a third of the teachers' questions built on what students had to say, and less than a quarter of a minute per class was devoted to discussion that involved free exchange of information lasting longer than 30 seconds. In a study of social studies, grades 9-12, less than a quarter of the lessons clearly emphasized depth; less than a third showed students giving reasons and explanations; and in only 15 per cent of the lessons did teachers carefully consider the reasons and explanations that students gave. This was particularly disturbing, because our synthesis of research on adolescents' ability to engage in critical thinking (Keating, 1988) refuted the common perception that adolescents are incapable of complex, abstract thought. The research review, plus the many instances we observed where students of all socioeconomic groups were being challenged to think, convinces us that expectations for high school students using their minds are far too low.

We found that well-intentioned efforts to build a culture of school membership could lead to unanticipated negative results for curriculum. In their effort to reach out to low-achieving students and to incorporate student interests in the curriculum, many teachers have

virtually abandoned the teaching of complex content in the main subjects of mathematics, science, English, and social studies. To feel included, students need support, success, caring, and incorporation of their ideas into academic study. But students' prior experiences and viewpoints must not be confused with the new experiences with formal knowledge that educators are obligated to provide. The point is not to substitute student personal experience for disciplined knowledge as the basis of curriculum, but to show how disciplined knowledge can empower students by expanding and by offering new tools with which to interpret personal experience.

It is possible that we have arrived at a critical moment in thinking about curriculum and instruction. On the one hand, we have learned from research on student cognition and student engagement that students' perspectives must be taken more seriously in the design of curriculum and the practice of teaching. This suggests a student-centered approach. We have also learned that students are more capable of complex thought than previously assumed, but that they are rarely challenged to understand academic content in depth. So, on the other hand, we find many voices urging curriculum reform in the direction of "hard content." These raised expectations for student understanding of disciplined knowledge suggest the need for more rigorous, subject-centered standards.

The student-centered and hard content perspectives are not necessarily incompatible and, therefore, do not require making a choice of one over the other. The importance of distinguishing between them is to note that the implementation of <u>each</u> perspective requires teacher commitment to and belief in conceptions of education that go beyond transmission of fragments of information. But what <u>are</u> the new conceptions of curriculum and teaching that incorporate students' prior knowledge and ways of thinking while at the same time pressing for mastery of complex academic content? Helping teachers to refine their conceptions of education and learning requires more than injunctions to restructure schooling and to rethink curriculum.

If students are to gain deep understanding of complex subjects, what are the alternatives to instruction through expository texts, teacher lectures, and the recitations typically demanded in worksheets and class discussions? To show the promise of student-centered approaches to the teaching of hard content, it will be necessary to develop new substantive rationales for particular high school subjects. These will need to wean both professionals and the public at large from their longstanding dependence on the paradigm of education as knowledge transmission.

New visions will be needed of both content and process to show how teachers, student peers, instructional materials, and advanced computer programs can create conversations that promote understanding of academic content in ways that enrich students' meaning systems. We have found numerous examples of teachers and students engaged in interesting, hands-on science projects; students working cooperatively to solve applied mathematics problems; intense debates in which students analyze historical episodes to clarify their reasoning on persisting public issues; creative writing that uses literature to illuminate a personal experience. These provide glimpses of an alternative curriculum model.

But the isolated examples have not yet been synthesized into total school programs. Only a few teachers, students, and parents have experienced them. Educational literature

describes them briefly but has not shown in compelling detail how such conversation, over a sustained period of time, actually provides students with the information, the intellectual skills, and the dispositions they need to understand and to use insights from the major subjects of mathematics, science, history, or literature. In short, this emergent vision of education has not been developed in enough detail nor has it been experienced even occasionally by enough people to compete with traditional forms and to inspire the reconstruction of curriculum and instruction.

Years ago progressive educational philosophy offered a foundation for the development of an alternative model of education. Since then, however, academic discussions, revisions of instructional materials, and case studies of successful teachers have not taken progressive principles far enough to map the kind of content appropriate for education in a modern multicultural society with vast disparities in the social capital its students bring to school. A number of projects are beginning to work on this problem (e.g., the Coalition of Essential Schools, the Paideia Project, Project 2061), but none has produced replicable models of classroom discourse clear and strong enough to replace the coverage principle, expository text, teacher lecture, and student reproduction of transmitted knowledge as currency of curriculum and instruction. Although we lack blueprints for alternative curricula, the knowledge we have gained about school culture and membership, along with emerging conceptions of curriculum, indicate the need for new organizational structures in secondary education as well.

Organizational Structure

Our examination of organizational structure focused mainly on the lives of students and teachers within individual schools, and less on the schools' relationships to external bodies such as districts, states, or national reform initiatives mounted by different organizations. Our studies of school-level organization have, however, also led to conclusions about external structures that will be discussed in the section on change processes. Our theory of student engagement as well as empirical results suggest the need for considerable change in the common organizational structure of comprehensive high schools. At the same time, both the theory and empirical findings indicate that organizational changes alone offer no guarantees of enhanced student engagement and achievement. We first consider the kinds of changes suggested and then some findings that show that organizational changes alone offer no panacea.

What new structures? The criteria of school membership for students suggest the need for organizational changes such as more focused instructional missions for the school, formal channels for student input into rule-making and enforcement, learning communities within schools that provide more sustained contact with staff who function in advisory as well as instructional roles, and minimizing the stratification of students into ability groups.

We found, for example, that students at risk benefit particularly from programs based on a "family" model in which a small group of teachers (about 4) take collective responsibility for planning and delivering education in the main subjects to a group of students (about 100) that stays together for at least a two-year period. The family model has great potential for developing stronger bonds of student trust, higher teacher expectations of students, teacher accountability for student achievement (through collegial observation of practice and more

sustained personal contact with students and parents). It also can offer teachers much of technical assistance and emotional support required for success with students so difficult to engage in conventional forms of schooling.

Criteria for authentic schoolwork suggest the desirability of smaller class size and smaller teacher load; more flexibility in the scheduling of instruction to allow for both much shorter and much longer instructional periods than the typical 50 minutes; formal and informal procedures for increasing student influence over the planning, execution, and evaluation of school work; easier access to learning resources beyond the school (e.g., through use of telephones and community-based learning experiences); reduced time in large group instruction and increased time in small group and individual study; new arrangements and incentives that facilitate the display of student work to the public at large and feedback on its quality from audiences other than a single teacher (e.g., peers, the public, and outside authorities). We saw examples in which each of these organizational innovations, in concert with other important factors (especially improved curriculum and teaching), was associated with high levels of student engagement and achievement.

Criteria for a culture of collegial professionalism beckon for such organizational changes as teachers working in teams; increased common time for faculty planning and evaluation of curriculum and instruction; school-wide faculty committees to influence decisions on curriculum, staff development, and other aspects of school policy such as hiring and budget; incentives that reward teachers for experimentation and program development. Consistent with other literature, we found schools in which such organizational features contributed to teachers' high level of commitment and technical competence. But, as we discuss next, none of these structures alone produces the kind of collegial professionalism required to boost student engagement and achievement.

Limitations of new structures. Changes in organizational structure are unlikely to enhance student engagement and achievement unless structural changes are deliberately linked to efforts to improve the substance of educational missions, cultural norms, curriculum, and teaching. Students working with faculty tutors or in small groups, for example, can be exposed to either boring or exciting material. Our synthesis of research on class size (Bennett, 1987) confirmed previous work that indicated that, unless dramatic reductions are made (e.g., from about 25 to 10) and are also accompanied by changes in teaching, changes in class size overall will have little effect on achievement as conventionally tested. Our study of social studies departments indicated that restructuring assisted in the promotion of higher order thinking, but that the more intense programmatic emphasis we found in select conventional schools allowed these schools to perform better than restructured ones. Our study of teachers' worklives in restructured schools concluded that collegial professional culture depended as much as or more on the quality of leadership than on the presence of new organizational structures.

Our research on ability grouping provides a further illustration of the indeterminate effects of specific structures (Gamoran & Nystrand, forthcoming; Slavin, 1990). There seems to be consensus that, overall, the use of homogeneous ability grouping in high school does not raise average achievement levels in the student population. The main issue is whether high-achieving students gain and low-achieving students lose as a result of homogeneous grouping, and, if so, what are the instructional processes that account for this. At this point

we conclude (with Oakes, 1985) that the instructional quality of low ability classes tends to be inferior to that of high ability classes and that students tracked into several low ability classes throughout high school encounter a cumulative regimen of fewer academic courses and less academic content, leading to reduced levels of engagement and achievement. This suggests either that major efforts must be devoted to improving instruction in low ability classes, or that these should be replaced with heterogeneously grouped classes. On the other hand, we recognize the difficulties teachers face with heterogeneous classes, particularly the problem of providing sufficient challenge to high-achieving students in these classes.

All of this indicates the need for reconsidering the way students are grouped to reduce the problems of large group instruction and to rely instead more on small, cooperative learning groups and individual study. New grouping patterns might avoid some of the problems of whole class ability grouping, but the new patterns alone offer no guarantee for at once raising the achievement level of students and reducing the disparity between the most and least successful students.

Changes in organizational structure offer much potential, and in some cases seem logically necessary, for boosting student engagement and achievement. They will be insufficient unless accompanied by substantive changes in educational vision. Yet new structures can themselves help to stimulate changes in educational vision. We have seen, for example, that frequent scheduling of small classes devoted to discussion, or scheduling instructional periods that last two hours, has led teachers to re-examine their assumptions about the main educational mission and how to achieve it with today's students. Ultimately, we should not rely on changes in organizational structure to shape educational vision, but vice versa. Ideally, we would want to form structures to serve more powerful conceptions of education.

Change Processes

How can high schools be changed to realize those aspects of school culture, curriculum, and organizational structure that boost student engagement and achievement? Our theoretical and empirical research did not concentrate on the process of changing high schools, but our studies of higher order thinking, programs for students at risk, and the quality of teachers' worklife familiarized us with diverse change efforts in more than 40 high schools. For the most part these innovations were initiated and sustained primarily within single schools, but we also observed efforts by districts to mandate and support school change across several schools at once. Research in these schools, along with the broader literature on school change, lead us to conclusions on the importance of a school's specific social context, the nature of effective leadership within schools, the role of change agents external to the school, and critical issues in planning for systemic change.

Social context. High schools are complex environments that pose enormous obstacles to fundamental change. There are common obstacles across schools, but the social context of each school exerts a powerful impact on how these can be attacked. Three aspects of the social context of comprehensive public high schools in the United States make change particularly problematic.

First is diversity. Schools serve student constituencies with widely diverse needs and expectations, and there is profound disagreement among education professionals and the public at large on the essential goals of education. The plurality of needs and goals arises from major differences in students' economic resources and in their ethnic and cultural backgrounds, from longstanding and unresolved philosophic argument over the proper ends of socialization and education of children, and from the increased demands for knowledge and skills in a technologically advanced, multicultural, democratic society. The diversity leads to a complex agenda of multiple goals for all children and for separate programs for particular constituencies. Such a context makes it difficult to develop and implement common solutions to problems in school culture, curriculum, and organization.

Second is satisfaction. In spite of evidence that millions of adolescents are poorly served by secondary schools, that thousands of teachers are burned out, and that politicians and corporate leaders are dissatisfied with high school performance, most students, teachers, and parents continue to believe their schools are working reasonably well. When most of the people touched by the nation's 20,000 high schools feel reasonably well served, it is hard to muster commitment for fundamental change either within individuals or for the system at large.

Third is systemic interdependence. Even school staff who would like to change their schools in major ways face a host of obstacles thrown up by different parts of the complex social system. District, state, and federal jurisdictions impose regulations on schools and subject them to vagaries of leadership. Schools' dependency on colleges and universities and on the economic and regulatory structures of the teaching profession limits the quality of teachers they can hire. Relying on a centralized, market-oriented publishing industry for instructional materials restricts the availability of engaging texts. The quality of students' education prior to high school and the entrance requirements to higher education also influence the nature of high school instruction. Finally, the system of social support for children offered by families, private social networks, and community agencies magnifies the range of problems schools face in engaging students.

Efforts to change what happens in a single classroom (e.g., increasing teacher questions that build on students' knowledge), to spread a single innovation to several classes (e.g., cooperative learning), or to fundamentally change a school's organizational structure (e.g., ending ability grouping) must face the many ways in which the problems of diversity, satisfaction, and systemic interdependence manifest themselves within the special historical and social context of the school.

Leadership within the school. As we observed changes in school culture, curriculum, and organization, we found, as have others, that leadership within the school seemed critical in both the initiation and the maintenance of innovation. Consistent with our synthesis of research on this topic (Peterson, 1989), significant leadership emerged not only from the school principal. In many cases department chairs and teachers took the most visible initiatives to establish a sense of mission, to develop new curriculum, programs, and school policy. Often principals acted largely as facilitators and supporters to these other leaders. Since effective school change may depend on leadership from many sources within the school beyond the principal, a major function of effective administrative leadership is to nurture it

in others—a point recognized in the literature, but not prominently emphasized in common images of the effective high school principal.

Effective leaders operated with a variety of styles, but all seemed to strike a delicate balance between directive decisions and guidance, on the one hand, and the support/empowerment of staff on the other. These leaders (principals, department chairs, and teachers) helped to establish visions, to argue for some priorities over others, to become highly involved in program details and in the daily lives of students and teachers. But they also delegated considerable authority, provided financial and moral support, buffered staff from hostile forces, and stayed out of the way when teachers exercised constructive initiative.

These qualities of leadership, exercised with sensitivity to the school's social context, suggest an evolutionary notion of school change (Louis & Miles, 1990). According to this notion, productive school change does not proceed on a tight linear path from a detailed plan to implementation to evaluation of success in terms of original intentions. Instead, while strong leaders may have certain directions clearly in mind, specific objectives and approaches to implementation evolve in a less predictable fashion as participants respond to unexpected challenges in the school's social context. Accepting an evolutionary concept of change has significant implications for the way leaders behave and the ways that school participants react to explicit school change efforts. This notion suggests, for example, that the precise consequences of proposed changes can never be fully anticipated, that criteria for evaluation for success or failure may themselves need to be modified in the process, and that changes originally intended are never implemented in a stable, final form. School change itself is considered an endless dialectic rather than a journey with a beginning and an end.

Change agents external to the school. The systemic interdependence of individual schools described earlier portrayed an almost endless maze of obstacles. But different parts of the system might also be viewed more positively as a set of potential resources to help schools increase student engagement and achievement. National discussions of school reform usually assume, for example, that school districts, states, universities, and publishers could and ought to be helpful in stimulating school improvement. Other agents external to the school also try to play constructive roles, such as teacher unions, other professional organizations, foundations, businesses, federally sponsored research centers and educational laboratories, and reform-oriented projects and consortia supported by these sources (e.g., the Coalition of Essential Schools, Project 2061, National Council of Teachers of Mathematics, Goodlad's Center for Educational Renewal). External change agents represent diverse goals and strategies. They wield varying degrees of influence over what actually happens with students in high schools. Our research has not systematically studied how each type of external change agent has been alternatively helpful, harmful, or had no discernible effects.

The most successful change efforts we saw in individual high schools did rely in some way on stimulation, ideas, and support from people, projects, or agencies beyond the school. Like Louis and Miles (1990) we found that the most successful of these were sought out by the school or provided assistance tailored to the school's situation. We are even further convinced of the need for outside stimulation and support to fulfill the kinds of changes suggested in our conceptions of school membership and authentic work. Ultimately the staff in individual schools must own their innovations, but current structures within schools that prescribe teachers' and students' work and that influence professional development are unable

by themselves to stimulate and sustain significant change in school culture, curriculum, or organization. Just as schools depend on external agents to maintain the status quo, so also do schools need pressure and support from external agencies to change.

We have not, however, discovered a productive way of harnessing and linking the resources that many external agents might use to support individual school change. Consistent with other literature (e.g., David, Purkey, & White, 1989), we found that local districts can help to stimulate significant school-level change. But more often we found either that the great bulk of district and state policy was usually irrelevant to school-level efforts to enhance student engagement and achievement or that top-down mandates and regulations undermined school efforts.

Much work needs to be done to devise approaches that maximize benefits and minimize losses from the work of external change agents. It will be important to maintain a balance between putting rather direct, explicit pressure on schools to change in some specific directions while at the same time offering the kind of support and autonomy that will empower them to chart their own courses. We have seen examples of district-initiated reforms that fail to take root in schools or in teachers' minds, because people at the school had insufficient opportunity to re-examine their work and to reach their own conclusions about the need for and the most appropriate strategies toward improvement. While some articulation of higher standards is necessary, top-down imposition of new curricula, new assessment procedures, or new organizational forms alone are likely to exacerbate the difficulties that teachers have engaging students. Striking a proper balance between institutional pressure and support from external change agents is analogous to the balance between directive guidance and support/empowerment that we observed in effective leaders within schools.

Systemic change. Our comments on social context, leadership, and external change agents have thus far been addressed to the problem of changing an individual high school—the major concern of participants within a school. The challenge of systemic change is to change many (or all) schools simultaneously within a district, a state, or the nation—a major concern of administrators and policymakers. A variety of initiatives have been proposed to stimulate systemic change. They include new systems of district and state assessment to hold schools more accountable for student outcomes; new curriculum standards (for teachers, schools, and publishers of instructional materials) that emphasize thinking and in-depth study over basic skills and survey coverage; reform of preservice training and of staff development of teachers and administrators; new career and reward structures for teachers and administrators; new systems of governance that give more authority to parents and teachers to run schools; schools programmed to serve more specialized missions than the common comprehensive high school; and increased school choice for students and parents. We have not carefully studied all these proposals, but our observations of individual high schools dealing with the pressures and frustrations of change suggest implications for the pursuit of systemic remedies.

Each of the above remedies appears reasonable at first glance and offers the potential for improving school culture, curriculum, and organization consistent with our conceptions of school membership and authentic work. But we can also imagine ways in which each of the above remedies could undermine the forms of engagement and achievement we envision. High-stakes testing by districts or states could continue to sanctify inauthentic reproduction

of fragmented knowledge. School-based management could remain preoccupied with personnel and budget issues and neglect important matters of school culture, curriculum and instruction. Specialized magnet schools and systems of choice can lead to deteriorating conditions for students who remain in conventional neighborhood schools (Moore & Davenport, 1989). Realizing that systemic remedies can conceivably work either for or against the forms of student engagement and achievement we may wish to promote, it is important to monitor their implementation with particular criteria in mind.

The five criteria discussed below may seem to present a host of new problems for school improvement, but the questions they raise grow out of advances in research on student engagement and achievement in American high schools. Our concluding concerns build on the findings of the National Center on Effective Secondary Schools to form a new agenda for five years of research in the Center on Organization and Restructuring of Schools.

Two important criteria have been emphasized in our conception of student engagement: the need to build in each school a sense of membership or a community of learning for students and staff alike, and the need to reconceptualize academic work itself into more authentic forms of human accomplishment. Unless proposals for systemic change are crafted to maximize these ideas, advances in student engagement and achievement will be minimal at best. Previous attempts at systemic school improvement suggest the need for three other criteria as well, which we present below as equity, constructive forms of empowerment, and change through reflective dialogue.

The "effective schools" movement began as an effort to narrow the achievement gap between low-income minority children and the more affluent middle class. National test results indicate that considerable progress has been made in narrowing the achievement gap in basic skills between minority and white students. These average results, however, obscure the fact that, in thousands of high schools, enormous disparities remain between students at risk due to low income, limited English proficiency, or lack of family support and those whose advantaged positions in the social-economic mainstream bring them much higher levels of school success. Disparities abound between these two groups both in the quality of instruction offered and in achievement levels. We found several secondary schools committed to enhancing equity among student groups, but in none of these schools could we point to systemic policies at the district or state level as major contributors to the school's success. The equity issue leaves much unfinished business that systemic remedies must be pressed to address.

School-based ownership of innovation by participants closest to students and classrooms is widely endorsed. On the other hand, an ever increasing appetite among policymakers for systemic remedies generates heightened tension between top-down and bottom-up reform. Involving parents, teachers, and administrators in shared decision-making at the school site, while at the same time imposing high stakes accountability to district, state, or national standards, will require new thinking about the most productive forms of empowerment. How can delegation of authority to decentralized groups be shaped to achieve a useful, reasonably efficient, and fair balance among the multiple interests within a school community? What arenas of decision-making can remain meaningful in the face of more intrusive demands for accountability from centralized sources? In short, proposed systemic remedies should themselves be held accountable to anticipate the specific ways in which they

support and diminish opportunities for ownership among the diverse groups whom schooling is intended to serve.

The empowerment issue just described may suggest an entirely new approach to systemic change. The familiar policy approach relies on top-down standards that schools must meet to stay in operation. But the many drawbacks of blunt policy instruments such as mandates, rules, tests, or financial incentives and penalties have been seen all too often. More recent thinking urges district and state bureaucracies to transform themselves from regulating agencies into those that instead offer services and support, based on needs of the schools. But who sets and enforces the purposes for which systemic support is offered? A middle ground between these positions recommends that change might be pursued more effectively through thoughtful dialogue between people at the school site and those with systemic responsibilities. In this role, the education bureaucracy functions primarily neither as a regulator nor as a service provider. It takes on aspects of each, but its major mission is to establish a constructive dialogue that, through a continuing dialectic, balances needs of local schools and those of systemic reform.

At this point, ideas about how to stimulate systemic change through reflective dialogue rather than coercive mandates are only beginning to emerge, but the new, less adversarial, character of negotiations between some unions and management indicates promising possibilities. What is clear is that old models of systemic change in education are inadequate. Proposals for systemic change would do well to cultivate the process of reflective dialogue. Having discovered that students learn to understand only through complex cognitive processes of assimilation and restructuring, district, state, and professional organizations should help teachers and schools to change through a similar process.

Most American high schools still have a long way to go to substantially improve the engagement and achievement of their students. In the future, as increased proportions of students arrive at the school door unlikely to benefit from conventional forms of schooling, these challenges will become ever more difficult. The good news is that in some places it can be done. Although most of the variation in students' school success remains within rather than between schools, we did find schools and programs that distinguished themselves in the promotion of higher order thinking, in developing effective programs for students at risk, and in maintaining high levels of teacher engagement with large proportions of economically disadvantaged students. These schools achieved success not primarily as a result of systemic policy pressure from external sources, but through a process of reflective dialogue within the school that, in some cases, benefitted substantially from the stimulation and support of external change agents. Whether these schools were accidental heroes or whether the lessons of their success can be generalized and harnessed toward more systemic improvement remains to be seen.

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PROJECT 1. CLEARINGHOUSE ON ACADEMIC ACHIEVEMENT

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The main functions of the Clearinghouse were to produce an updated bibliography on research in secondary education, to commission research syntheses on selected topics, and to conduct literature searches on request. Information on the quantity and distribution of the bibliographies and syntheses is given in the Section on Dissemination. Here we concentrate on substantive contributions of the research syntheses. Syntheses were produced on the following topics (specific citations for each are listed in Appendix A): ability grouping, adolescent critical thinking, class size, community service, cooperative learning, high schools as communal organizations, instructional leadership, learning styles, magnet high schools, noninstructional influences on achievement, staff development, and stratification of learning opportunities.

Selected findings from these studies are summarized below.

1. Conventional wisdom holds that most adolescents are incapable of higher order thinking, because they have not attained sufficient levels of cognitive development. Keating's (1988) review of the research showed that this conclusion is not justified. The ability to engage in critical thinking in academic subjects may be limited by students' prior experience, but not by biological constraints.

2. Cooperative learning activity and research has concentrated mostly in elementary schools. Only a small number of studies of the effects of cooperative learning on student achievement in secondary schools have been completed. Consistent with findings at the elementary level, Newmann and Thompson (1988) found that, in 68% of the secondary level comparisons, the results of cooperative learning groups exceeded those of control groups on conventional achievement tests. Some types of cooperative learning activities were more successful than others.

3. A high sense of community within high schools brings benefits for teachers and students alike. Using a national data base of several hundred high schools, Bryk and Driscoll (1988) established a communal index of school organization. Over 20 variables were used to indicate the extent to which students and staff had a shared system of values, participated in a common agenda of activities, and emphasized caring through collegial relations among faculty and extended roles between faculty and students. In communal schools, teachers had higher morale and less absenteeism. Student dropout rates were lower, their interest in learning higher, and gains in mathematics achievement higher.

4. Instructional leadership within the high school comes not just from principals, but from other administrators, department chairs, and teachers as well (Peterson, 1989). Good leaders pay attention both to the technical aspects of instruction and to the cultural side of school by supporting certain values and beliefs among

teachers. Principals can be most effective by working for clarity of purpose and a shared sense of the school's instructional mission.

5. Students and staff consistently endorse the value of community service for adolescents, and recent recommendations have urged that it become part of the high school program. According to Conrad and Hedin (1989) research on the effects of service experience is somewhat incomplete, but consistent findings from quantitative studies indicate a heightened sense of personal and social responsibility, enhanced self-esteem, and increased moral and cognitive sophistication. However, it is estimated that less than a third of U.S. high schools offer such programs and less than 10% of the students participate.

6. Ability grouping and tracking continue to be controversial issues. According to Gamoran and Berends (1987), qualitative studies show that high track students receive higher quality instruction; and survey studies indicate that, as a result of tracking, high track students gain more in achievement than low track students. Slavin (1990) concluded, however, that the net effect of rigorous experimental studies is that homogeneous ability grouping offers no advantage for anyone—whether high achievers, average achievers, or low achievers. Differences in these findings can be explained in part by differing research methodologies.

7. The research base on important issues in secondary education remains weak in many areas. For example, Blank (1989) found it difficult to draw conclusions about the effects of high school magnets, largely because existing studies do not control for the selection effects of magnet schools. Curry's (1990) synthesis of research on learning styles emphasized problems of definition, weaknesses in the reliability and validity of measurements, and the lack of adequate studies on the effects of using learning styles in instruction.

PROJECT 2. NONINSTRUCTIONAL INFLUENCES ON ADOLESCENT ENGAGEMENT AND ACHIEVEMENT

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Main Questions

In a spate of studies conducted during the 1970s and 1980s researchers raised concerns over the limited knowledge base and low levels of academic motivation that characterized a sizeable number of American high school students. Most recommendations for dealing with these problems focused on the "instructional" domain of the school: curriculum content, teaching methods, course work or credit requirements, ability grouping, teacher-student ratios, and so on. As important as these factors are to student engagement and achievement, it is obvious to even the most casual observer of high schools that students' interests and efforts in school work are affected by "noninstructional" factors as well. For example, a student whose parents demand that working on the family farm or caring for siblings take precedence over homework and school attendance cannot be expected to do as well as a student whose parents regularly attend school functions and set firm expectations that the student get high grades.

Our study focused on four areas of noninstructional influences on high school students' engagement and achievement patterns: family (especially parents), peers (especially peer group, or "crowd" affiliations), part-time employment, and school-sponsored extracurricular activities. Our interest was to move beyond basic studies of "structural" features in each area that affected student achievement: whether students came from intact or single-parent families, whether students were involved in extracurricular activities or not, and so on. Instead, our intent was to focus on processes of influence in each area: how different parenting strategies affected engagement and achievement, whether extracurricular participants were affected by the degree to which coaches or advisors emphasized academic achievement, and so on. In other words, our main interest was in identifying the specific processes in each area by which students' academic engagement and school performance are increased or diminished. A second interest was in exploring how influences interacted across areas to affect high school students. Should these four noninstructional areas be regarded as independent, competing, or complementary sources of influence on student engagement and achievement?

Our intent was to identify ways in which school personnel could emphasize the positive influences and offset the negative influences that were observed in each noninstructional area. In other words, we wished to identify "school-site levers" by which students could be "pulled" into more academically oriented family and peer environments or directed into extracurricular and part-time employment contexts that would enhance their engagement in school. This interest was central to our choice of noninstructional areas to study. School staff organize and direct extracurricular activities; they oversee student participation in part-time employment and peer relationships; and they have opportunities to

involve parents in school and educate them about effective parenting strategies. Thus, to a surprising extent, schools are able to direct the academic influences that students encounter in each of the noninstructional areas that we studied.

Methodology

To address these issues we developed a self-report survey questionnaire that was administered in two parts (one in the fall and one in the spring) to all students present on the day of testing in three Wisconsin high schools and six in the San Francisco Bay area. Although all were four-year public high schools, they varied substantially in size (from 400 to 2500 students), location (rural, suburban, inner-city), and the ethnic and socioeconomic composition of the student body. Approximately 8,000 of the 12,000 students enrolled in these schools successfully completed both portions of the questionnaire. Refusal rates were very low (under 5 percent) in all schools, but sample attrition (between fall and spring portions of the questionnaire) was disproportionately high among black and Hispanic students and among those with records of low academic achievement.

In all three Wisconsin schools and three of the California schools the questionnaire data were supplemented by interviews with a selected portion of students and parents. The interview data provided more detailed information on family and parental influences and on respondents' location in the school's peer group system.

To allow us to examine age changes as well as age differences in patterns of noninstructional influences we repeated administration of the questionnaires a second and third year in each school. Graduating seniors were not followed past high school, but each year the entering (freshman) class and all other new students were added to the study.

The design and administration of these research instruments was a collaborative effort between our research staff and colleagues at Stanford University who, under the direction of Drs. Sanford Dornbusch and Herbert Leiderman, were conducting a similar investigation of ethnic differences in parental influences on high school student achievement.

We are still in the process of cleaning data from the second and third years of the study and merging them with the first-year data. Thus, the findings presented in this report are based on questionnaire and interview data collected during the first year of the study.

Although we did not attempt to construct a nationally representative sample of high school students, findings indicated that our sample compared quite favorably with previous studies that used similar variables, including national samples. For example, the average GPA in our sample was 2.75; students reported lower grades in math and science than English and social studies. They also indicated they spent about 45 minutes per week on homework in each major subject—or 4 to 5 hours per week all told. These figures are not significantly different from findings of nationally based studies (Thomas, 1990). The sample also was comparable to previous study samples in the proportion involved in extracurricular activities and part-time jobs, the average hours per week spent in employment, the distribution among parenting styles, the relationship between parenting styles and various psychosocial outcomes, the most prominent peer groups, and many other measures. Because of these comparisons,

we feel confident in generalizing our results beyond the schools that participated in the survey.

At the same time, it is important to point out that for most analyses there were substantial differences among participating schools in the pattern of results, even after controlling for the ethnic and socioeconomic distribution of the student body. For example, students in the rural Wisconsin school spent less time on homework (20% below the sample average), had lower educational aspirations and engagement levels, lower GPAs, and lower levels of parental monitoring and parental achievement expectations than students in any other school in the sample. Such findings underscore the limitations of aggregate results from nationally representative samples and the need to examine student engagement and achievement patterns within schools with different profiles (in terms of size, location, etc.). With this in mind, what follows should be considered a general statement of our results rather than a comprehensive report of all that is in our data.

Main Findings

The common practice for studies of noninstructional influences is to examine the effects of a single area of influence without reference to other areas and with little attention paid to factors such as school size or students' ethnicity. We believe there is much to be gained from a more integrated approach to the study of noninstructional influences. Thus, rather than presenting findings about influences in each noninstructional area separately, we will collapse the four areas studied into two pairs and examine the comparative influence of the areas that comprise each pair.

Parental versus peer influences. A common belief is that parents and peers represent opposing influences on adolescents: Whereas parents encourage academic achievement and prosocial behavior, peers distract teenagers from achievement and entice them into antisocial activities (Coleman, 1961; Davis, 1949). Our findings, however, suggest that both parental and peer influences are quite diverse, and they tend to be more complementary than oppositional, although the precise nature of the relationship varies among ethnic groups.

As in previous studies, we found that students from economically disadvantaged and single-parent families did worse academically than those from higher socioeconomic backgrounds or intact families. Of more interest, however, was that specific parental attitudes and behaviors had an impact on student achievement levels. Students had higher grade averages if their parents were involved in school (attended school functions, were aware of the classes their child was taking, etc.) and if they monitored students' academic progress (checked to see that homework was done, "kept tabs" on the child's whereabouts after school, and so on). Father's level of involvement in school was more predictive of the child's grades than mother's level of involvement—in large part because paternal involvement was generally quite limited so that any involvement by fathers was a significant factor. Parental expectations for achievement (the grade average parents expected their child to maintain) also was a significant predictor of achievement level, but not as significant as parental monitoring or parental involvement.

Beyond these academically focused parenting variables, another significant predictor of the child's academic performance was general parenting style. As others have reported,

children from authoritative households outperformed (academically) children whose parents adopt authoritarian, indulgent, or neglectful parenting styles. Analyses within ethnic groups (controlling for socioeconomic status), however, indicated that this was true only for Anglos. Among Asians, students from authoritarian families did just as well as those from authoritative families, and parenting style was not strongly predictive of achievement levels among blacks and Hispanics.

In general, then, parents' actions (monitoring, involvement in school, parenting styles) had more impact on student achievement levels than their values or expectations.

As for peer influence, most students reported that their friends encouraged achievement—at least to a moderate degree. In fact, most students indicated that their friends regarded finishing high school as significantly more important than partying or spending time with friends or being involved in extracurricular activities. Of course, there was substantial variation in the degree to which peers endorsed school achievement, especially in regard to the peer group, or "crowd," to which students belonged. Peer support for achievement was exceptionally strong among members of the brain crowd, relatively weak among druggies, and moderate (and relatively undifferentiable) for jocks, populars, loners, and average students.

This suggested that the degree to which students take school seriously can be swayed by the peer crowd into which they fall. Yet, crowd affiliation does not appear to be haphazard or independent of adult influence. We found that the rank ordering of crowds by achievement norms paralleled the rank ordering by parents' marital status (proportion in intact families), parenting style (proportion in authoritarian households), parents' educational expectations, and degree of parent monitoring. It appeared that family structure and parenting behaviors were significant factors directing students into crowds that were more or less academically oriented.

Nevertheless, parents and peers did operate as significant, independent sources of influence on student achievement patterns. Students with the highest grade averages reported strong support for academic achievement from both parents and peers. Yet, the relationship between parental and peer support did vary among ethnic groups. For Anglos and Asians, parents and peers were complementary influences on academic outcomes (they had significant, independent, direct effects). For Hispanics the effects were more synergistic; specifically, parental support enhanced academic outcomes, but primarily among respondents who enjoyed high peer support. For black students, effects were either synergistic or compensatory (high support from one reference group enhanced academic outcomes for students who encountered low support from the other reference group).

Influences of extracurricular activities and part-time work. The influences of participation in extracurricular activities and part-time jobs are difficult to predict. On the one hand, they may be so engaging or time-consuming or exhausting that students have little inclination, time, or energy to study. On the other, contact with adults, eligibility requirements, or glimpses of future career possibilities may motivate students to work more diligently in school.

In our sample, 40% of students had part-time jobs (during the school year); most worked 15 hours a week or more. More students—over two-thirds of the sample—were

involved in at least one school-sponsored extracurricular activity, but their time commitment was much lower than among workers, averaging 10 hours or less per week. Whereas parental and peer influences on achievement tended to be closely related and complement each other, the influences of extracurricular participation and part-time employment were, in many respects, antithetical.

Our findings corroborated the results of previous studies that working per se had less of an influence than number of hours worked. Those who worked less than 10 hours a week enjoyed a modest "academic edge" over students without jobs. As hours worked increased beyond this level, however, both GPA and homework time dropped substantially. Furthermore, hours worked was directly related to rates of school deviance (skipping school, cheating on tests, etc.) and psychosomatic disturbance (anxiety, depression).

By contrast, extracurricular participation was associated with positive school outcomes, even after controlling for background differences (academic ability, SES, etc.) between participants and nonparticipants. The more extensive a student's participation—in terms of number of hours, number of activities, or number of types of activities (sports, performing, leadership, clubs, and interest groups)—the more time was devoted to homework and the higher was the students' GPA. Interestingly, however, the degree of academic advantage that extracurricular participants enjoyed depended on the type of activity in which they were involved. Those who concentrated on "glory" sports (football, basketball, baseball) or performing activities had a significantly lower academic record than those who concentrated on leadership activities or clubs and interest groups. In part, this was due to differences in the "academic climate"—especially the degree of personal resources and support for achievement from fellow participants—that students encountered in their activities. Interestingly, the degree to which coaches or advisors supported achievement was not a significant factor in participants' achievement levels.

In general, then, whereas part-time employment distracted students from achievement, extracurricular activities enhanced their school performance, although in each case the effect was mitigated by additional factors (hours worked, "academic climate" of the activity, etc.). The contrast was especially troublesome because there was a negative correlation between hours of involvement in these two contexts. In other words, students "stole time" from an academically enhancing environment (extracurricular activities) in order to increase involvement in an academically alienating environment (part-time jobs). As with parental and peer influences, the influences in these two noninstructional areas were significant but modest.

Implications for Practice

It is understandable that many parents feel alienated from high schools. They find themselves unable to comprehend the academic work their children are doing and unable to offer much assistance with homework. They may recall their own academic frustrations and failures in high school. They are unfamiliar or uncomfortable with the "popular culture" (rock groups, grooming styles, teenage vernacular) that dominates the school. These feelings or experiences, combined with their sense of a teenager's need to be independent and make her or his own decisions, may prompt parents to limit their contact with school or their efforts to monitor their child's academic progress. Our findings emphasize the need for high schools

to redouble their efforts in parent involvement and parent education. It is revealing, we think, that parents' attendance at extracurricular events is nearly as influential (to their child's achievement patterns) as their attendance at back-to-school nights or other academically oriented meetings. Schools may increase parental involvement through greater empowerment of parent advisory councils or parent-teacher associations, greater reliance upon parent booster clubs for extracurricular activities, wider use of parents as chaperons and sponsors for social events, and so on. In multicultural schools, offering "back-to-school" night classes in Spanish or Asian languages may dramatically increase attendance.

Efforts to bring parents to the school more regularly should be accompanied by efforts to educate parents in effective parenting and discipline strategies, in appropriate methods of monitoring their child's activities, and in productive responses to their child's performance in classes. This may involve meetings to discuss particular topics, brochures that can be mailed to parents, use of local media to impart information, and so on. Parents should be encouraged to "network" with each other to share information on "what works" in motivating teenagers academically and directing them to prosocial activities.

Schools also can take a strong hand in shaping the extracurricular program to enhance students' academic commitments. Although there is a strong effort these days to "toughen" eligibility requirements ("no pass-no play" rules, etc.), our findings suggest that a more productive approach would be to enhance the academic climate of extracurricular activities. It may be time to adopt a new philosophy for school-sponsored activities, especially interscholastic sports, in which coaches and advisors are rewarded for student participation rates rather than the team's won-loss record or the "professional polish" of a dramatic production. Reducing practice time and performance expectations may relieve the pressures students report that interfere with their school work. It should also free coaches and advisors to be more effective academic mentors for participants.

Schools also can play a strong advisory role for students seeking part-time employment. Schools may wish to offer (or require) a counseling session for students seeking school endorsement of a work permit. The session could caution students about the academic risks of extensive work hours and advise them on time management strategies, decision-making skills, and the like. Schools also ought to forge stronger partnerships with local businesses that employ their students; school personnel can become more sensitive to employers' needs and frustrations while at the same time alerting employers of the academic risks that long hours and inflexible work schedules present to students.

The school's role in shaping peer group influences may be more indirect but is still important. School staff should think carefully about the consequences of differential treatment of members of different peer groups: strictly enforcing school rules for druggies while ignoring infractions by jocks or brains. Devising programs that give alienated groups such as druggies or punks some sense of ownership of the school may help dissipate the anti-intellectual norms that characterize these crowds. Having several staff members cultivate closer relationships with members of these crowds may increase their sense of school bonding. At the same time, staff should make an effort to direct students into more academically oriented crowds. This can involve working directly with at-risk students to cultivate talents and interests that will make them more acceptable to groups such as the jocks or performers

or normals. It can also involve working with parents on parenting strategies that will direct students into healthier peer groups.

Implications for Research

In addition to academic engagement and achievement, the findings bear on broader issues of interest in empirical research and theory about adolescent development. Most notably, they provide support for ecological models of development by demonstrating the importance of context in shaping adolescent behavior. For example, we discovered that authoritative parenting, widely accepted as the most effective parenting strategy, actually has markedly different effects in different ethnic contexts. Also, our findings not only contradicted theories that present parents and peers as opposing forces in adolescence but indicated that the precise relationship between parent and peer influences (whether they are complementary, compensatory, or synergistic) depends on background factors such as age and ethnicity. Still to be explored are the substantial variations by school in the patterns of association we observed, variations that remain even after controlling for student body characteristics such as ethnicity or socioeconomic status. In seeking to identify the factors that account for school effects (size, location, school climate, etc.), we may discover linkages between the noninstructional influences that were the focus of our investigation and instructional factors that were the focus of other projects in the Center.

Our study underscores the need to focus on process variables in examining contextual effects on adolescent development and behavior. For example, whether or not students had a part-time job or were involved in extracurricular activities was not as strong a predictor of academic outcomes as factors such as hours spent in these contexts or the degree to which the demands of the work or extracurricular context distracted them from school work. Researchers have already moved from status to process variables in examining parental influences on adolescent behavior. This approach should be encouraged in other contexts (the work place, the peer group, and so on).

Reference

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PROJECT 3. THE STRATIFICATION OF LEARNING OPPORTUNITIES IN MIDDLE AND HIGH SCHOOL

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Main Questions

The purpose of this project has been to learn more about the effects of secondary school tracking on student achievement. We addressed four main questions. First, what are the typical results of ability grouping and curriculum tracking? This question concerns two aspects of achievement: (a) the dispersion of achievement, that is, whether tracking tends to widen or narrow the gap between high and low achievers, and (b) the average level of achievement, that is, what happens to overall achievement as a result of decisions on how to arrange students. The first concern may be termed "educational inequality," and the second is called "educational productivity."

Second, how do these results come about? To answer this question, we needed to examine not just who belongs to which track, but what goes on in the different tracks that produces different outcomes for students. From the outset, we speculated that the effects of belonging to one track or another are closely related to differences in the way teachers and students interact in the different tracks. Assessing the merit of this hypothesis required extensive work in the development of instruments for assessing the quality of instruction. Our study of "how tracking effects occur" thus became one of "how instruction affects student achievement" as well.

Third, how does the structure of tracking affect its influence on achievement? This is a question about how tracking is used in particular schools. In posing it, we rejected the assumption that tracking has similar effects in all contexts. Instead, we hypothesized that differences in the organization of tracking lead to differences in the effects of tracking on achievement. For example, some schools have rigid tracking systems, in which assignments are relatively permanent and are maintained across subject areas. Other schools allow more flexibility over time and across subjects. What are the implications of these differences for tracking's effects on achievement?

Fourth, what is the nature of the track assignment process, and how are assignment procedures connected to achievement outcomes? Previous research had separately considered questions about track selection and track outcomes. In our project, we examined the joint implications of track selection and outcomes for inequality of results across racial, socioeconomic, and gender groups. We also considered differences across school districts in track assignment policies.

Main Findings

The Effects of Grouping and Tracking: Inequality and Productivity

How does tracking affect inequality of achievement? Our investigation began with analysis of data from High School and Beyond (HSB), a nationally representative longitudinal study of high school students. We found that students who reported being in the college track scored higher on tests of math, science, reading, vocabulary, writing, and civics than similar students enrolled in general and vocational programs (Gamoran, 1987). This finding suggests that tracking adds to inequality of achievement: over time, tracking permits initially higher-achieving students to gain more, and lower-achieving students to gain less, even after pre-existing differences are taken into account.

At the time, a major question was whether or not such track effects should be considered substantively meaningful. Our study used the effects of dropping out as a benchmark to assess the importance of track effects. We found that differences between tracks were as large as or larger than the differences between dropouts and students who remained in school. Hence, we concluded that the effects of tracking are substantively as well as statistically significant.

Another question about this research was whether apparent track effects were actually due not to tracking but to unmeasured differences among students enrolled in different tracks. Gamoran and Mare (1989) reanalyzed the HSB data with statistical models that allowed for such selection bias. The results replicated the earlier findings—tracking widened the achievement gaps—and showed that selection bias was minimal when a large number of demographic and cognitive factors were controlled.

Because it assumes all schools are tracked, HSB did not permit us to test directly whether tracking affects productivity, i.e., the average level of achievement. Gamoran and Mare (1989) conducted simulations to see what would result from the elimination of tracking. They reported, not surprisingly, that what would happen in the absence of tracking depends on what would replace it. If all students enrolled in a program like the current college track, average achievement would be higher. If the new program were like the noncollege track, achievement would be lower.

More direct assessment of tracking and productivity comes from data we collected from about 1100 students in 54 eighth-grade English classes (Gamoran, Berends, & Nystrand, 1990; Gamoran & Nystrand, 1990). On average, we found no difference on a test of literature achievement between schools using homogeneous and those using heterogeneous grouping. Hence, grouping's effects appeared neutral for productivity. However, within the schools using homogeneous grouping, we found substantial difference among classes designated as high-, regular-, and low-ability. Thus, our data gave evidence for track effects on inequality as in the survey research.

These findings replicated the results of a national survey in Britain that indicated that ability grouping had no effects on productivity but led to increased inequality. The pattern occurred because grouping led to higher achievement for students in high-ability classes but

lower scores for students in low-ability classes, compared to students with similar backgrounds and initial test scores in ungrouped schools (Fogelman, 1983; Kerckhoff, 1986).

In a "best-evidence synthesis" commissioned by the Center, Slavin (1990) found no consistent pattern of ability-grouping effects on either inequality or productivity in secondary schools. The review relied heavily on experimental studies but also summarized correlational studies. Slavin interpreted these results as indicating that the true effects of ability grouping in secondary schools are zero, arguing that grouping not only fails to affect average achievement in the school, but that it neither raises scores for high-group students nor lowers achievement for low-group students. Another interpretation of the inconsistent results across studies is that ability grouping may have been implemented differently in different studies. Cases that showed positive effects of grouping may have reflected experiments in which teachers were resistent to heterogeneous grouping, whereas studies indicating negative effects may have been carried out with teachers who made special efforts to reach students of diverse abilities in the heterogeneous classes. Similarly, in some studies instruction may have been allocated differently to different classes, resulting in increased inequality, while instruction may have been held constant in other studies, resulting in no achievement effects.

Despite these differences of interpretation, there are important points of agreement between Slavin's review and the conclusions of Gamoran and his colleagues. First, Slavin acknowledged that broad curriculum tracking, as opposed to subject-specific ability grouping, leads to achievement inequality. This occurs, he suggested, because curriculum tracking involves more than just assigning students to different levels of the same course; rather it implies entirely different coursework, such as geometry versus basic math.

Second, these writers all agree that the effects of ability grouping depend on how it is implemented. As Slavin remarked: "The lesson to be drawn from research on ability grouping may be that, unless teaching methods are systematically changed, school organization has little impact on student achievement" (1990, p. 491). Slavin and Gamoran agree that what happens to students inside the groups is more consequential for achievement than whether or not the students are ability grouped. These conclusions imply that any grouping effects on inequality that do appear may be attributable in part to instructional differences across groups and tracks, and our project has investigated this hypothesis.

The Effects of Grouping and Instruction on Literature Achievement

The earlier writings of Oakes (1985), Gamoran (1986), Slavin (1987), and others gave strong reason to believe that grouping and tracking contribute to inequality because high-track students receive higher-quality instruction while low-track students have less access to valued learning opportunities. To assess this hypothesis, we developed a framework for assessing the quality of classroom instruction, focusing on eighth- and ninth-grade English and social studies.

Measuring classroom discourse. Our approach extended Nystrand's (1986) work on reciprocity, arguing that effective instruction, like other forms of human interaction, involves give and take among participants. The more students are drawn into the instructional process, we reasoned, the more involved they would be in the substance of their academic work and the higher their achievement.

Instructional discourse can be characterized along specific dimensions to reveal the extent of students' involvement. Unfortunately, when teachers ask questions, typically the only knowledge they are seeking is whether or not the students know the answers, as on a test. In contrast, in response to **authentic questions** (those lacking prespecified answers), students actually contribute knowledge to the conversation instead of simply reciting what the teacher already knows. Another way teachers draw students into the instructional process is by following up on students' responses and incorporating them into subsequent questions, a process called **uptake**. Uptake can be seen as part of the more general phenomenon of **contiguity**, the extent to which different aspects of instruction are interrelated. When students write about their readings, relate readings to other readings, discuss their writing, and so on, instruction has more coherence, and students are more involved. Yet another important indicator refers to how teachers evaluate students' responses: when they treat students as primary sources of information by incorporating their responses into the instructional content, they engage in **high-level evaluation**.

Authenticity, contiguity, and high-level evaluation may characterize not only classroom talk, but students' reading and writing assignments as well. For example, a writing assignment is authentic if, instead of having a predetermined answer (as in most short-answer exercises), it requires students to present and defend an opinion or asks them to investigate a matter that the teacher does not know much about.

We argued that authenticity, uptake, contiguity, and high-level teacher evaluation are aspects of "substantive engagement," reasoning that these instructional conditions foster student commitment to the substance of their academic work. We also took account of "procedural engagement," looking at the extent to which students completed their reading and writing assignments, spent time on homework, and misbehaved in class.

Measuring achievement. To examine the effects of procedural and substantive engagement, we designed achievement tests for eighth- and ninth-grade English. (We also tested students in social studies, but our analyses to date have primarily drawn on the English data.) We constructed a separate test for each class by choosing five representative pieces of literature from a list of all the novels, short stories, and plays read in each class during the year. Although the selections differed across classes, the questions on each test were the same. They ranged from ones requiring simple recall, such as "briefly explain how each story ended" to others requiring in-depth understanding and synthesis, such as "briefly relate the conflict in [name of story] to the ending of the story." Each test was scored by two readers on a variety of dimensions including recall, depth of understanding, identification with character motivations, and the like. Each reader's ratings were summed across test dimensions, and the final score was computed as the average of the two readers' totals, which correlated at .90 in the eighth-grade study and .82 in the ninth-grade study.

Effects of substantive and procedural engagement on literature achievement. We used regression analyses to measure the effects of procedural and substantive engagement on literature achievement, controlling for sex, race/ethnicity, socioeconomic background, and prior reading and writing skills. The results were largely consistent across the two grades, with some interesting differences (see Nystrand & Gamoran, in press, forthcoming).

First, students who conformed to classroom procedures tended to score higher: spending time on homework and completing assignments contributed positively in both grade levels. In the eighth-grade study, classes in which more students were off-task produced lower achievement, whereas this relation was not statistically significant in the ninth-grade data.

Second, the quality of classroom discourse affected achievement. Uptake and contiguity had positive effects in both grades; authentic teacher questions raised achievement in the eighth-grade analyses; and high-level evaluation in classroom talk was linked to higher achievement in the ninth-grade data. Authenticity of writing and high-level evaluation of writing did not produce higher achievement in either grade.

Surprisingly, authentic teacher questions showed a negative relation to achievement in the ninth-grade study. Inspecting the data more closely, we uncovered some low-achieving classes with unusually high levels of authenticity. These classes, however, gave little sustained attention to literature: either few selections were introduced, or the teacher read aloud instead of expecting the students to read. These findings led us to qualify our conclusions: high-quality classroom discourse leads to higher literature achievement only when it occurs in the context of sustained attention to literature.

Importance of instruction for the effects of ability grouping on inequality in literature achievement. To what extent do instructional conditions account for the effects of ability grouping? Our results are suggestive though not conclusive. In both grade levels, our results indicated that differences in procedural engagement—the extent to which students did their work and refrained from misbehaving in class—accounted for part of the achievement gaps. In the eighth-grade data only, we found differences across ability groups in the quality of discourse, which helped further account for achievement inequality. In all, differences in procedural and substantive engagement accounted for about half of the low-group students' achievement deficit, and a quarter of the high-group students' advantage, compared to students in regular eighth-grade classes (Gamoran, Berends, & Nystrand, 1990; Gamoran & Nystrand, 1990).

In the ninth-grade data, we failed to find a clear pattern of instructional discourse favoring high-group students, and in our analyses the quality of discourse did not help explain achievement gaps between ability groups. We attribute the inconsistency to greater curricular diversity among the ninth-grade classes; for example, some low-ability classes exhibited high-quality discourse, but not in discussions of literature. Consequently the quality of discourse did not categorically account for their achievement deficit. Overall, then, our data show that high-group students tend to be more engaged in classroom procedures, and low-group students less engaged, a pattern that contributes to widening achievement gaps. At the same time, variation in the quality of discourse may also contribute to achievement differences under some conditions (Gamoran & Nystrand, forthcoming).

Variation in the Effects of Tracking

Most studies of tracking, including much of our own work, assume that the effects of tracking are the same in all schools. The national survey data set High School and Beyond contained enough schools to allow us to test this assumption (Gamoran, 1990b). First, we found significant differences among schools in the effects of tracking on achievement in math,

reading, and vocabulary. Second, we found that these differences were systematically related to differences in the structure of tracking; that is, depending on tracking's structure, its effects could be stronger or weaker. Third, we found that variation in the structure of tracking also affected overall achievement in the school.

The strongest finding regarding structural variables occurred for "track immobility," the extent to which students tended to shift tracks over time. Schools in which few students changed tracks had greater inequality between tracks and lower overall achievement. This occurred, we argued, because the lack of mobility prevents schools from being able to match instruction to students' needs. At the same time, rigid tracking systems probably magnify the status distinctions between tracks and thus heighten tracking's effects on achievement through social-psychological mechanisms.

The Track Assignment Process

Most previous work on track assignment had focused on whether placement was based on ascribed characteristics (e.g., SES) or achieved characteristics (e.g., test scores). Like earlier research, our survey analysis pointed to achievement as the major predictor of track positions, although SES also had a significant effect on whether students reported being in the college track. Also consistent with earlier work, we found no disadvantage for blacks or Hispanics once test scores and SES were taken into account; in fact black students were slightly more likely to be found in the college track than white students with similar cognitive and economic backgrounds. This finding led to the conclusion that existing tracking systems lead to lower black-white achievement inequality than would occur if all students were in the same track (Gamoran & Mare, 1989).

In our study of eighth- and ninth-grade English, we examined the conditions under which students gain access to honors English in ninth grade (Gamoran, 1990a). Rather than assuming the process works the same in all cases, we asked whether differences among the districts in assignment procedures resulted in differences in a given student's likelihood of enrolling in the honors class. We found that three of five districts relied heavily on students' past ability-group positions in assigning students for ninth-grade English. This practice tended to limit opportunities for upward mobility for students outside the honors level.

Although placement was somewhat tied to SES as the survey research had indicated, we found that one district intentionally and successfully eliminated the connection between SES and honors English placement. Interviews with counselors, teachers, and administrators in this district suggested that they went out of their way to encourage students from minority families and low-SES families to enroll in high-level courses.

Methodology

Our survey research relied on the High School and Beyond (HSB) data set, a nationally representative, longitudinal survey of students who were first surveyed in 1980 (Jones et al., 1984). The data we used came from students who were sophomores in 1980, and who were resurveyed in 1982, 1984, and 1986. Key variables for our analyses included cognitive tests in math, science, reading, vocabulary, writing, and civics; student-reported sociodemographic data such as sex, race/ethnicity, and family economic conditions; data on

track locations and coursework, also drawn from student questionnaires; and school data on context, composition, and course offerings.

The new data we collected came from eight midwestern communities. Sixteen middle schools, which fed into nine high schools, participated in the study. Of the eight communities, six were public school districts: three in small-town or rural areas, with one junior high and one high school apiece; one was suburban, with three middle schools and one high school; and two were urban, adding five middle and three high schools to our sample. The other two communities contained Catholic high schools that drew students from a number of urban and suburban K-8 feeder schools.

In the smaller middle schools, all the English and social studies classes participated in the study, and in larger middle schools we included four classes per subject per school. We included more classes per school at the high school level because fewer schools participated; our sample averaged six classes per subject per high school and ranged from two to nine depending on the size of the school and the number of ability-group levels. Virtually all the students in the selected classes participated, yielding samples of about 1200 students per subject in each grade.

Each year, we observed four lessons in each of about 50 English and 50 social studies classes, totalling about 400 class periods of observation in all. Observers noted the time allocated to various classroom activities, such as lecture, discussion, seatwork, etc. Also, the observers coded all substantive questions according to their discourse quality, as described above. Over the two years we coded over 40,000 instructional questions.

As described above, the students completed tests of reading, writing, and social studies in the fall and of social studies and literature achievement in the spring. The students also filled out questionnaires describing their demographic backgrounds, their attitudes toward themselves and their schools, their expectations for future schooling, and their perceptions of classroom processes. Teacher questionnaires yielded most of our data on the discourse quality of reading and writing assignments. Information on the track assignment process in each district came from interviews with teachers, principals, and guidance counselors in each school.

Implications for Practice

What conclusions for educators can be drawn from the research? The evidence leads to two areas of recommendations, which must be considered while bearing in mind the particular circumstances of different schools.

Make Better Use of Tracking

Improve instruction in low tracks. Logically, the most straightforward approach to improving the outcomes of tracking would be to improve the quality of instruction in low-track classes. This would both raise achievement in the school as a whole and reduce the achievement gap between tracks.

Improving instruction in low tracks starts with—but must not be limited to—raising expectations. As observed in a Catholic school case study, teachers who believe low-track students can learn seem to succeed in convincing their students of the same. In this climate, authentic dialogues and sustained attention to academic issues are more likely to occur.

Improving the quality of discourse in low-track classes is a challenging task, because the students themselves tend to resist. Often they prefer structured written work to oral discussions, because in discussions they risk exposing their ignorance publicly. As noted above, low-track students are more often disengaged from schoolwork, and this is probably a precursor of high school tracking at least as much as a result. One procedure that may help is to avoid the common practice of using low tracks as a dumping ground for students who misbehave. Intellectual performance, rather than behavioral signals, should guide the formation of remedial classes.

Many teachers of low-achieving classes feel severely limited when they try to teach literature. This is especially true since many students in such classes have poor reading skills and often fail to do homework. As a result, many teachers simply do not assign homework to their students in low-achieving classes but rather teach literature by reading extremely short texts in class that leave enough time for follow-up discussion, small-group work, or seatwork. One unfortunate result of this approach is that the students leap from story to story and fail to become involved over time in anything substantial. It is not surprising, then, that students in such classes fail to remember much about the literature they deal with (Nystrand & Gamoran, in press, forthcoming). As a result, the experience with reading and literature of students in low-achieving classes is too often fragmented, superficial, and unengaging.

Increase the flexibility of tracking systems. Survey data suggest that tracking systems in which students have little opportunity to move from one track to another tend to reduce overall achievement and to magnify the effects of tracking on inequality. If tracking is to confer any benefit, it must facilitate the provision of instruction that matches students' needs. Because students' needs change over time, they must have an opportunity to shift track levels accordingly.

At the same time, overemphasizing flexibility can make classes utterly chaotic. One middle school in our study with a diverse population was committed to heterogeneous classes. The teachers used four or five different grouping formats simultaneously, just in English; this resulted in so much flexibility that teachers as well as students had trouble keeping straight where they were supposed to be and at what times, and much time was lost in moving from one grouping arrangement (e.g., for spelling) to another (e.g., for literature). It seems preferable to find a middle ground between the constant flux of this school and the rigidity of so many others.

Consider Alternatives to Tracking

Whole-class instruction in heterogeneous classes. In response to tracking's negative effects on low-track students, many schools and districts are considering alternatives to traditional tracking systems. When grouping and tracking are eliminated, they are typically replaced with whole-class instruction for mixed-ability classes. When this occurs, one can be fairly confident that inequality will decline. What is uncertain is whether this will occur

through a rise in achievement at the bottom of the distribution, a decline at the top, or some combination.

Sometimes district-mandated de-tracking results in teachers feeling both anger at having heterogeneous classes forced on them and uncertainty about how to cope with them. Successful change undoubtedly requires an influx of resources, such as staff development, released time, and/or teacher aides, that both assist teachers at developing strategies for teaching more diverse classes and provide extra time for meeting a larger array of student needs.

Whole-class instruction is the dominant teaching mode in secondary school classrooms. If students vary widely in their skill levels, it is unlikely that lecture and recitation can meet the needs of all students simultaneously. Hence, teachers may assign "enrichment" activities to high-achieving students to be carried out as seatwork and homework. This strategy, however, deprives the strongest students of instruction involving direct contact with the teacher, which is the most productive form of instruction, on average. This strategy may account for the finding that heterogeneous grouping fails to match the achievement level of high-track classes for the highest-achieving students.

Cooperative learning and other small-group strategies in heterogeneous classes. One of the most promising alternatives to tracking is the use of small-group instruction, particularly in a cooperative learning format. In cooperative learning, the classroom incentive structure is modified so that students are rewarded for group performance (sometimes in addition to rewards for individual performance). This technique tries to use differences among students as a strength rather than as a weakness. It is specifically designed to enable students to contribute according to their own skill levels, so it is well suited to heterogeneous classes.

Many studies have shown that cooperative learning produces higher achievement than traditional whole-class instruction (e.g., Slavin, 1983). Presumably this occurs without the increase in inequality that is associated with ability grouping. However, important questions remain. First, the vast majority of research on cooperative learning has been conducted at the elementary school level. Newmann and Thompson (1987) reported that junior high studies tend to support cooperative learning, but of six studies conducted in grades 10-12, only two showed positive effects. Thus there is some question about whether cooperative learning will prove as successful in secondary as it has been in elementary schools. Second, no study has compared the achievement of students in high-track classes to that of similar students in untracked, cooperative learning classes, and it is an open question whether cooperative learning can match ability grouping in producing achievement among the top students.

Our study suggests that, if small-group heterogeneous instruction is to replace ability grouping and to produce higher achievement and less inequality, then it must be implemented better than it is in the typical case (Nystrand & Gamoran, in press). Our data showed, to our surprise, no overall benefits to greater amounts of small-group time. This occurred, we believe, because the vast majority of small-group time was not used for collaborating on projects, sharing creative ideas, building on one another's knowledge, or drawing on diverse skills. Instead, small-group time was generally used for collaborative seatwork, in which students simply worked on filling in blanks on traditional worksheets, but in groups instead of alone.

One cannot avoid the conclusion that successful replacement of grouping and tracking with cooperative learning in heterogeneous classes will require an influx of resources for staff development, released time for planning instruction and evaluating student work, and/or teacher aides—just as we concluded for whole-class instruction. Without such assistance, most teachers would be at a loss to deal with a sudden increase in the diversity of needs in their classes.

Implications for Theory and Further Research

Our research indicates that ability grouping and curriculum tracking help reinforce cognitive and socioeconomic inequalities. However, this did not hold for inequality based on race: black students in fact held a net advantage in the likelihood of assignment to the college track. Because this finding is based on self-reported indicators of track positions, one may question whether it reflects real differences in the propensities of blacks and whites to enroll in different tracks, or instead represents racial differences in the perception of track assignment. Studies with alternative indicators of track positions are needed to pursue this issue further.

Our findings indicated that higher-quality instructional discourse generally contributes to achievement. Not only completing one's work, but being substantively engaged in the academic task at hand enhances learning. Future research is needed to replicate our findings in other subject areas and at other grade levels. In addition, future work must examine the various dimensions of instructional discourse more closely, to see which are most consistently linked to student achievement. We learned, moreover, that one must also examine the content about which the discourse occurs; accordingly, some classes with high levels of authenticity but little attention to literature failed to produce high levels of literature achievement. Future work needs to attend more closely to the content of instruction as well as examining the quality of discourse.

We found limited evidence that variation in the quality of instruction accounts for achievement differences between tracks. Our eighth-grade findings were consistent with this proposition, but the ninth-grade data failed to reveal a consistent pattern of association. Thus, the connections between tracking, instruction, and achievement require further study.

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PROJECT 4. HIGHER ORDER THINKING IN THE HIGH SCHOOL CURRICULUM

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Main Questions

Can high schools teach students to think, to use their minds to solve complex problems? Or, are high schools destined to follow the familiar path of passing on numerous fragmented bits of information that students memorize, but soon forget? In spite of persistent injunctions that American schools ought to teach reasoning, problem-solving, critical thinking, and creative use of the mind, many studies confirm the conspicuous absence of attention to these goals in classrooms. Why?

The apparent failures of high schools to promote higher order thinking led this project to focus on two main tasks: (a) to identify specific barriers that inhibit the promotion of higher order thinking and (b) to discover whether and why some social studies departments are more successful than others in overcoming the barriers. We were concerned not simply with explaining the success of individual teachers, but more importantly with the performance of organizations, that is, departments within high schools.

To carry out this research, it was necessary to complete a number of intermediate tasks that themselves produced important results. These included developing (a) a definition and conception of higher order thinking that synthesized research knowledge and practical wisdom, (b) a set of dimensions through which to observe the level of thoughtfulness promoted in lessons, and (c) a test of higher order thinking in social studies that is independent of the specific content studied in diverse courses.

Main Findings

Definition of Higher Order Thinking

Based on reviews of literature in education, psychology and philosophy, and on teachers' explanations of what it means to teach students to think, we define higher order thinking as the interpretation, analysis, or manipulation of information to answer a question that cannot be resolved through the routine application of previously learned knowledge. According to this definition, higher order thinking occurs whenever students respond to nonroutine intellectual challenges.

However, the mere posing of higher order challenges offers no assurance that students will meet the challenges successfully. A useful pedagogical conception of thinking should identify the kinds of resources that students need to resolve higher order problems competently and what teachers can do to help students develop the resources. Consistent with other literature, we have explained elsewhere the need for three types of resources: in-depth knowledge, intellectual skills, and dispositions of thoughtfulness such as reflectiveness,

intellectual persistence, flexibility, and tolerance of ambiguity, and respect for reasoned argument. To equate the promotion of thinking with the teaching of thinking skills is inadequate and misleading. Successful problem-solving also requires in-depth knowledge of specific subjects and dispositions of thoughtfulness to guide the application of skills to reorganize one's knowledge.

Dimensions of Classroom Thoughtfulness

To assess the extent to which teachers posed higher order challenges and nurtured the development of knowledge, skills and dispositions of thoughtfulness, we initially developed fifteen observable dimensions of classroom thoughtfulness. Eventually these were reduced to six main indicators. Each was used to make an overall rating of observed lessons on a five-point scale. That is, the criterion for thoughtfulness indicated by the dimension was judged from 1 = "a very inaccurate" to 5 = "a very accurate" description of this lesson.

Dimension 1. There was sustained examination of a few topics rather than superficial coverage of many.

Mastery of higher order challenges requires in-depth study and sustained concentration on a limited number of topics or questions. Lessons that cover a large number of topics give students only a vague familiarity or awareness and, thereby, reduce the possibilities for building the complex knowledge, skills and dispositions required to understand a topic.

Dimension 2. The lesson displayed substantive coherence and continuity.

Intelligent progress on higher order challenges demands systematic inquiry that builds on relevant and accurate substantive knowledge in the field and that works toward the logical development and integration of ideas. In contrast, lessons that teach material as unrelated fragments of knowledge, without pulling them together, undermine such inquiry.

Dimension 3. Students were given an appropriate amount of time to think, that is, to prepare responses to questions.

Thinking takes time, but often recitation, discussion, and written assignments pressure students to make responses before they have had enough time to reflect. Promoting thoughtfulness, therefore, requires periods of silence where students can ponder the validity of alternative responses, develop more elaborate reasoning, and experience patient reflection.

Dimension 4. The teacher asked challenging questions and/or structured challenging tasks (given the ability level and preparation of the students).

By our definition higher order thinking occurs only when students are faced with questions or tasks that demand analysis, interpretation, or manipulation of information; that is, nonroutine mental work. In short, students must be faced with the challenge of how to use prior knowledge to gain new knowledge, rather than the task of merely retrieving prior knowledge.

Dimension 5. The teacher was a model of thoughtfulness.

To help students succeed with higher order challenges, teachers themselves must model thoughtful dispositions as they teach. Of course, a thoughtful teacher would demonstrate many of the behaviors described above, but this scale is intended to capture a cluster of dispositions likely to be found in any thoughtful person. Key indicators include showing interest in students' ideas and in alternative approaches to problems; showing how he/she thought through a problem (rather than only the final answer); and acknowledging the difficulty of gaining a definitive understanding of problematic topics.

Dimension 6. Students offered explanations and reasons for their conclusions.

The answers or solutions to higher order challenges are rarely self-evident. Their validity often rests on the quality of explanation or reasons given to support the answers. Therefore, beyond offering answers, students must also be able to produce explanations and reasons to support their conclusions.

The six dimensions were combined into a single scale (CHOT) that served as the indicator of classroom thoughtfulness for an observed lesson. Items on the scale have a reasonably high level of internal consistency (Cronbach alpha = .82). Exploratory factor analysis and LISREL modeling of the fifteen initial dimensions also identified these as a distinct construct of thoughtfulness.

Overall Levels of Classroom Thoughtfulness in Different Social Studies Departments

Estimates of classroom thoughtfulness were based on lessons sampled from social studies departments in 16 high schools. The departments were selected to represent three different types: (a) those that placed special emphasis on higher order thinking, but that organized instruction according to familiar patterns in the comprehensive high school (henceforth the five "select" departments); (b) those that made no special department-wide efforts toward higher order thinking and were also conventionally organized (henceforth the seven "representative" departments); (c) those that involved a departmental emphasis on higher order thinking and, in addition, had made significant changes in the organization of instruction (henceforth the four "restructured" departments).

On a scale from 1 to 5, the mean of all lessons was 3.40 (standard deviation = .82). Most of the variation was between teachers within departments, but significant differences were also found between departments in total classroom thoughtfulness. The top departmental mean was 4.05 and the bottom was 2.88. The difference between the means of departments in the highest quartile (3.92) and lowest quartile (2.92) was 2.6 times the overall departmental standard deviation (.38) or 1.2 times the overall standard deviation among lessons (.82).

There was overlap among departmental means in the three groups of select, restructured, and representative departments, but differences between these groups also appeared. The select departments scored the highest (mean = 3.73), the restructured departments next (mean = 3.50), and the representative departments lowest (mean = 3.11).

Classroom thoughtfulness tended to increase with the ability level of the class and to increase somewhat with the grade level, but racial composition did not seem to affect classroom thoughtfulness. It was encouraging to find that, in some departments, student background characteristics had no relationship to classroom thoughtfulness. Thus, it is possible to cultivate classroom thoughtfulness equitably among students of different abilities, ages, and races.

Major Barriers

The overall levels of classroom thoughtfulness indicate that there is much room for improvement, even for teachers and departments scoring in the higher ranges. What are the obstacles or barriers that seem to inhibit the promotion of thinking in social studies? From extensive observation and interviews with school staff, we identified five as most significant.

The first, and apparently most fundamental, is the dominant belief, held by teachers and much of the public at large, that the main task of education is the transmission of items of knowledge covering a broad range of topics, rather than the development of thinking or in-depth understanding. This belief consistently steers curriculum, teaching and testing away from the promotion of thoughtfulness.

The second barrier is a dominant belief about students that reinforces the first about curriculum; namely, that students are incapable of and/or uninterested in higher order thinking. Low expectations for students tend to be based on assumptions that deficiencies in many students' developmental maturity, their innate capacity, their background knowledge, or their educational aspirations make it imprudent, if not impossible, for teachers to emphasize thinking over the transmission of knowledge.

But even teachers committed to the goal of thinking and those who have confidence in students' potential face at least three other potential barriers. First is the large number of students per class and overall student load per teacher. To promote higher order thinking, teachers should respond thoughtfully to students' oral and written work, but this is often impossible when large numbers of students must be managed simultaneously within a class period or when 150 essays must be evaluated.

Since the dominant forms of education promoted in curriculum, texts, tests and teacher education programs stress transmission and coverage over thinking, teachers need more time to plan instruction, to assemble materials, and to devise meaningful tests focused on thinking. Since the typical preparation time per day is insufficient (45-50 minutes), the lack of teacher planning time can also be a barrier.

The final obstacle is the culture of professional isolation common to most high schools. As just indicated, teaching students to think poses a difficult instructional challenge for which the profession has offered no simple solutions. Achieving the goal for all students will not be accomplished by teachers working alone, because there is no formal, powerful knowledge base on which to base individual practice. To promote higher order thinking, teachers, therefore, need both emotional support and technical assistance from their

colleagues. Professional isolation in high schools will need to be replaced by collaboration in planning, teaching and evaluating instruction.

The scores on classroom thoughtfulness suggested that some departments were more successful than others in overcoming these barriers. How did they do it?

Factors Critical to Success

We identified the barriers by synthesizing a variety of information, but none of the departments had an explicit plan to attack each of them as stated here. Thus, rather than trying to explain how the successful departments overcame each barrier, we searched for commonalities in the thinking of individual teachers, in the nature of school leadership, and in organizational features of the departments. We found differences between the most and least successful departments in each of these areas.

Teachers' Thinking. Teachers who scored highest on classroom thoughtfulness differed from lower scorers in three main ways. They placed a higher priority on thinking as an instructional goal for all students. They articulated more developed, elaborate conceptions of thinking that placed more emphasis on dispositions and skills (less emphasis on mere accumulation of knowledge). And they felt more comfortable emphasizing depth of understanding over breadth of coverage in the curriculum. We cannot explain why or how successful teachers came to think about social studies education in these ways, but we suspect that their conceptions may have been influenced by the patterns of leadership and organizational features that seemed to distinguish the more successful from the less successful departments.

School Leadership. Departments that scored highest on thoughtfulness distinguished themselves from the lowest scorers by the kind of instructional leadership offered by the department chair and the principal. While each of the top scoring departments took a different approach to the promotion of thinking, all of the department chairs provided programmatic leadership in three ways. They helped to generate a department-wide commitment to the promotion of thinking as a central goal. They stimulated and participated in curriculum development aimed at the goal. And they encouraged a collegial climate for teachers to critically examine their own specific teaching practices with reference to the goal of promoting students' thinking. Furthermore, principals in the successful schools supported the work of the department chairs by showing their personal commitment to the instructional goal, by providing resources for staff development, and by observing teachers and giving constructive feedback on their efforts to promote thinking.

Organizational Features. The most successful departments initiated organized programs for the promotion of thinking. The focus of the programs varied considerably, but each involved a process for generating and supporting staff commitment to higher order thinking, a series of curriculum development efforts aimed in this direction, and staff development activities (such as peer observation and discussion of pedagogy) to nurture continuing dialogue and growth in the mission. Programmatic concentration on higher order thinking seemed to be the most critical organizational feature. We studied four "restructured" departments, but found that structural characteristics such as instructional load (number of students taught per teacher), the degree of teaming, methods for grouping and scheduling

students, or degree of teacher control over curriculum did not distinguish the most from the least successful departments. We believe that the highest levels of thoughtfulness are likely to be found in departments that combine restructuring with a strong programmatic emphasis, but we were unable to test this, because none of the restructured departments in our sample demonstrated a strong organizational program focused on higher order thinking.

Relationship of Classroom Thoughtfulness to Student Engagement

The promotion of classroom thoughtfulness can be seen not only as an end of education, but also as a means for engaging students in learning. Are students more interested in school work and do they try harder when they are challenged to use their minds? The answer is yes. According to both observer ratings and student reports, there is a strong association (correlations of .55 and above) between student engagement and the level of classroom thoughtfulness.

Relation of Classroom Thoughtfulness to Student Achievement

Does classroom thoughtfulness actually improve student achievement in social studies? Due to the lack of an appropriate assessment exercise, the research was unable to answer this question adequately. Since students in the study were instructed by fifty-six teachers in 16 different high schools pursuing a wide variety of topics, it was not possible to administer a single test that would assess the quality of students' thinking about the specific subjects they had studied. In some of the schools, however, we administered a test of persuasive writing about a constitutional issue. While none of the teachers had concentrated either on understanding constitutional issues or on persuasive writing, we were interested in whether the classroom thoughtfulness we observed in the teaching of diverse topics would bolster student competence in this task.

Students were presented with background information and an actual court case dealing with the rights of school authorities to search student lockers. They were asked to read the material (2 pages), to develop their own position on whether the student's constitutional rights were violated and to defend their views in a persuasive essay that used information presented. Essays were scored according to a rubric adapted from the National Assessment of Educational Progress (NAEP). On a scale from 1 to 5, the mean score was 2.2, less than satisfactory. Most students could not give two or more persuasive reasons to support their position.

After controlling for ability level of the class, student scores on a similar pretest, and other background variables, the findings suggested that the level of classroom thoughtfulness was not strongly associated with the posttest of students' persuasive writing on a constitutional issue. We believe a strong relationship would have been found between classroom thoughtfulness and student achievement if (a) the teachers' curriculum had concentrated on constitutional reasoning or (b) a test could have been constructed to assess student thinking in each of the subjects actually taught.

Methodology

Between Fall 1986 and Spring 1990, the project conducted almost 300 lesson observations, and in-depth interviews with teachers, social studies department chairs, and principals in 16 demographically diverse high schools, divided into three types as described earlier. Rather than concentrating on differences between individual teachers, the goal of the project was to understand what is required for department-wide promotion of higher order thinking.

Since we sought estimates of the highest levels of classroom thoughtfulness, the strategy was to concentrate on those teachers in each department who emphasized higher order thinking the most. But we also wanted evidence that opportunities for thoughtfulness were available to all students, not restricted to the high achievers. The department chair at each school selected three main courses, taught by different teachers, to be observed at least four times over the school year. The three classes were to illustrate as much higher order thinking as possible, but they were to include (a) a class with a substantial proportion of lower and middle achieving students, (b) a history course with a diverse range of students, and (c) any other class that best illustrated an emphasis on higher order thinking (which usually comprised high achievers). Our analyses are based on four lesson observations from each of these three classes, plus six other lessons observed in each department drawn from at least two additional teachers. Within scheduling constraints, teachers were encouraged to select for our observation those lessons that placed most emphasis on higher order thinking. In addition to recording ratings on the 5-point dimensions, observers also wrote descriptive notes, especially to elaborate on high-scoring dimensions.

Teachers, department chairs, and principals completed at least two hours of interviews. These probed their written responses to questionnaires that explored their conceptions of and commitment to higher order thinking as an educational goal, the factors they perceived as necessary to accomplish it, the barriers that stand in the way, and the kind of leadership devoted to it within the school.

Students were interviewed and/or surveyed about the kind of instruction they find engaging and challenging. In the representative and restructured schools students also took a test that called for higher order thinking: writing a persuasive essay on a constitutional issue.

Implications for Practice

The project has implications for curriculum, teaching, assessment, and program development in high school social studies.

1. Curriculum. The project's conception of higher order thinking can be applied to all curriculum topics in social studies for students at any age any from any cultural background. It recommends that curriculum be planned around novel cognitive challenges and that content be oriented to developing in-depth understanding of knowledge, intellectual skills, and dispositions of thoughtfulness.

2. Teaching. The six main qualities of classroom thoughtfulness provide specific criteria to guide teaching and classroom interaction: depth, coherence, time, challenge, student reasoning, and teacher modeling. These are applicable to teaching a variety of content and can help to organize teachers' reflection on their practice.

3. Assessment. The test of persuasive writing on a constitutional issue and the criteria for scoring provide a new instrument for reliably assessing higher order thinking in high school social studies.

4. Program Development. Programs to promote higher order thinking in high school social studies will need to confront five main barriers: education conceived as transmission of a broad survey of information; low expectations for student thinking; the large number of students taught per teacher; lack of planning time for teachers; and a culture of professional isolation. These can be overcome through departmental and principal leadership that builds departmental consensus on the goal of promoting higher order thinking and a culture of collaboration among teachers to develop curriculum and to systematically examine teaching consistent with the goal. The project's conception of thinking, its criteria for classroom thoughtfulness, and its test of persuasive writing on a constitutional issue can be used in staff development activities to develop such programs.

Implications for Theory and Further Research

The project developed conceptions of higher order thinking and classroom thoughtfulness that challenge two main approaches to the teaching of thinking. The first is to construe thinking as the use of a set of highly specific skills that must be explicitly taught. The second is to assume that productive thinking is to be achieved primarily by mastery of knowledge within a specific domain of content. By emphasizing a complex interplay among three elements—in-depth knowledge, skills, and dispositions of thoughtfulness—the project offers a more comprehensive theory of thinking and its development.

Although the project did not set out to develop a theory of school change, it's findings supported a number of claims of theories of instructional leadership and organizational effectiveness. These included the importance of department chairs and principals taking specific action to build staff consensus on school goals and to support teachers in developing and in examining their own teaching systematically.

The project found that organizational structures alone do not determine the content or success of educational programs. Some curriculum goals may require or be facilitated through certain organizational structures, but in general the structural features of schools (e.g., patterns of control, the number and nature of students served, or the degree of organizational differentiation) seem independent of the nature of education offered. Restructuring theory should pay special attention to this point.

The project's most important unanswered question is the extent to which generic qualities of classroom thoughtfulness help to advance students' higher order thinking about specific subjects studied. If new methods of assessment can be developed to answer this question, and if further research on this question can be sponsored, this would make an important contribution to a persistent theoretical issue: How important are generic qualities

of teaching versus more systematic organization of specific content in teaching students to think?

PROJECT 5. RESEARCH ON PROGRAMS AND POLICIES AFFECTING AT-RISK YOUTH

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Main Questions

During the five years of the Secondary Center, two major research projects focused on at-risk students. While each proceeded from its own set of questions, they also shared some central questions. The first project began with a search for schools that were effective with students considered at risk of dropping out of school. Fourteen alternative schools that met criteria for effectiveness were identified through a national search. The central questions for this study were: What are the characteristics of these effective schools? In what ways do their practices differ from most contemporary public secondary schools?

The fourteen schools were studied for about a year to assemble more detailed descriptions of their day-to-day operations and to develop a general explanation for their effectiveness. A variety of quantitative and qualitative data were gathered.

To answer the central questions, the research focused on social relations between students and teachers, curriculum and instruction, and school organization and structure. With respect to social relations, our questions were designed to produce descriptions of the ways in which teachers and students interacted and the extent to which this interaction differed from what students had previously experienced. The concept of "social bonding" between students and the school initially guided our research and eventually led us to conceptualize and assess the strength of "school membership" for students. School membership became central to the initial study and was pursued in the subsequent study.

Inquiry into curriculum and instruction focused on the extent to which students were exposed to different content and/or instruction from what was offered in mainstream schools. Since most of the students had records of poor academic performance (although some showed indications of high ability), in what ways did these schools attempt to engage students in academic pursuits, and to what extent were students able to achieve based on standard measures of achievement? Our findings about the curriculum strategies used to promote engagement have provided a basis for continued research about at-risk students.

The organization and structure of these alternative learning environments generated questions about the relationship between organizational factors and student experiences, and it also raised issues about teachers' working conditions. Some of these factors were the small size of the schools, the increased time available to teachers to collaborate in their work, and the strengthened role of teachers in decision making and governance. In what ways were these alternative structures able to eliminate some of the impediments to school success for at-risk students? In what ways did these structures assist teachers in using practices they believed were necessary with at-risk students?

In the second major project, we studied school reforms for at-risk students at a systemic level. Rather than choosing exemplary or alternative schools, we studied conventional schools that were part of the Annie E. Casey Foundation's New Futures Initiative designed to promote a variety of innovations across youth-serving institutions including the restructuring of schools. The central questions here concerned the possibility of improving education for students at risk with a particular emphasis on collaboration between schools and other youth-serving agencies.

Based on findings from the first study, we wanted to know how large conventional schools could foster greater membership and engagement for at-risk students. To what extent could whole schools develop the kinds of relations between students and teachers that were found essential to the success of students in the fourteen alternatives? To what extent could these schools develop curriculum utilizing the principles underlying student experiences in the best alternatives? How could large conventional schools be reorganized to create conditions that teachers needed to work effectively with at-risk students?

New Futures raised additional questions about the relationship between schools and various community agencies responsible for the welfare of youth. How can schools best coordinate with these external resources in developing support to help at-risk students succeed in school? An even more important issue was whether a new organization in each community dedicated to the coordination of youth services could also develop the political leverage needed to bring about fundamental school reforms.

Main Findings

The study of fourteen alternative schools indicated that the most successful of these can be viewed as prototypes that respond to the diverse characteristics of at-risk students. The successful schools were especially effective in diminishing students' sense of alienation from formal education, providing avenues of interaction between teachers and students that reduced social isolation, and creating an atmosphere of acceptance that students had not experienced in large comprehensive high schools. These effects were due in part to teachers functioning in an "extended role" of counselor and confidante regarding out-of-school as well as in-school problems. These schools also provided teachers greater collective control over the school environment. Shared decision making about important conditions of work for students and teachers appeared to enhance teachers' sense of efficacy in dealing with school problems.

These characteristics nurtured a different school culture that both students and teachers identified as central to the school's effectiveness. Effectiveness was measured through observation and testimony, and questionnaire data were also gathered on several social-psychological constructs. Based on pre-/posttest results, a number of schools had positive effects on students' social bonding to teachers and school, self-esteem, academic self-concept, and locus of control. Also improved were attendance, behavior, and the number of credits earned.

The study resulted in a theory of dropout prevention (see Figure 1) built on two intermediate educational goals—school membership and educational engagement. These concepts help to specify critical school factors that maximize productive social relations

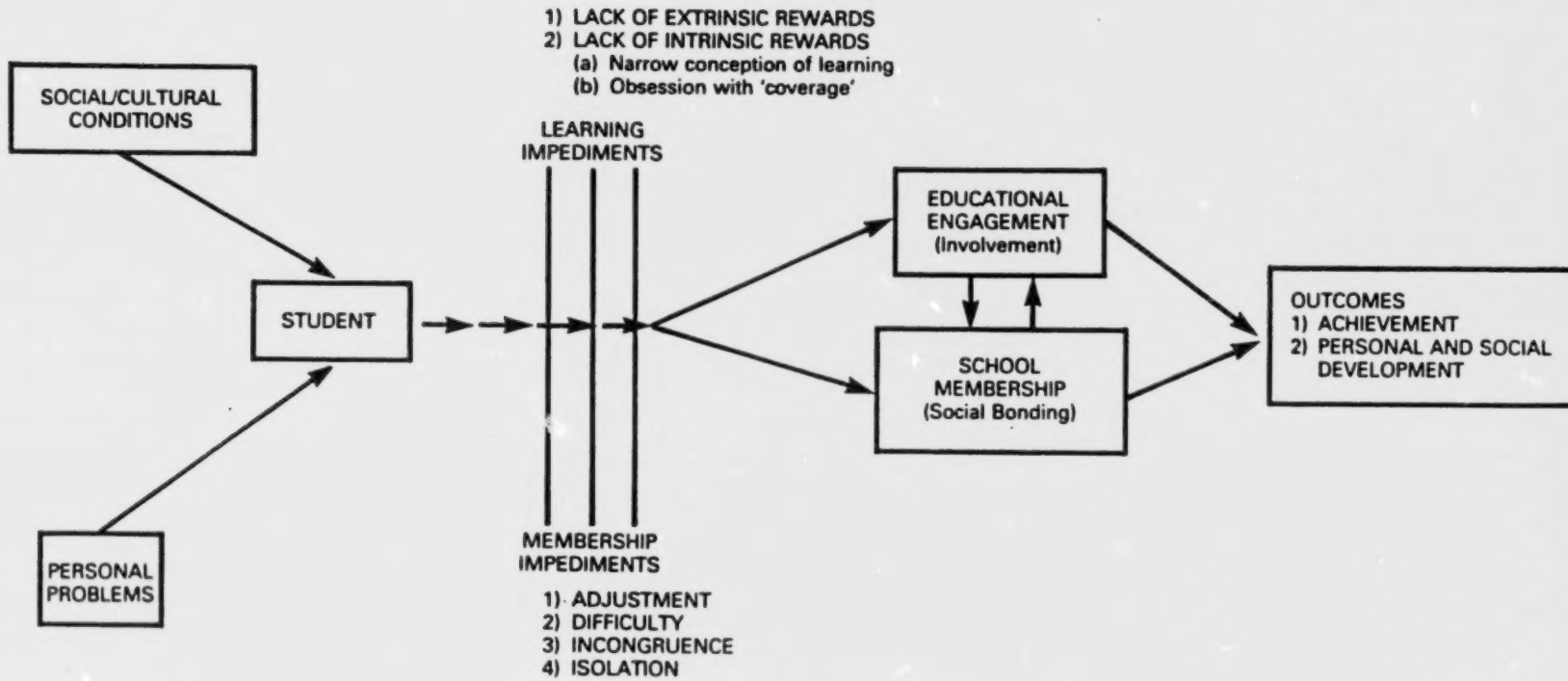

Figure 1: Dropout Prevention Theory: School Factors

between staff and students and effective forms of learning and curriculum. The theory hypothesizes school membership as the foundation on which educational engagement is built. As intermediate goals, they are essential to the ultimate outcomes of personal development and academic achievement. The theory is based on data indicating that schools were effective with at-risk students because they found a variety of ways of reducing impediments to membership and engagement.

Typically a number of impediments prevent students from attaining membership and engagement. Membership is blocked in several ways, such as students' lack of adjustment to changing institutional demands as they move to new schools and higher grades. Adjustment problems often are manifested in the transition from middle to high school as new teachers and expectations are encountered. A major impediment that many students face is the increasing difficulty of academic work. The inability of old coping strategies to be successful results in failure and negative labels for these students. Lack of success in school is humiliating to most students, and in self-defense they posture an "I don't care" attitude.

Another impediment is the lack of fit between the formal goals of schooling and students' perception of their own goals and opportunities. An institution that stresses preparation for more schooling, particularly college, is not congruent with the future projected by many at-risk students. Finally, isolation of students from peers and adults is a major impediment to membership. As youth make the difficult transition to becoming independent adults, they encounter increasing social distance between themselves and significant adults, including teachers, who can provide guidance on a host of personal decisions. Most of the alternative schools made conscious efforts and were successful, to some degree, in reducing the magnitude of the impediments involving adjustment, difficulty, incongruence and isolation.

Educational engagement also is blocked by impediments. The effect of these is to make learning neither intrinsically interesting nor extrinsically rewarding. Engagement is often undermined because learning is narrowly conceived to mean the "coverage" of fragmented bits of knowledge and skill. When restricted to a formalized style associated with books and courses, learning appears unrelated to life and to the "real work" people do outside of school. The result is that at-risk students become alienated from formal education, further reducing their chances of social and economic mobility.

The Casey Foundation's New Futures Initiative provided an opportunity to study further the implications of findings from the alternative schools. Eight conventional middle and high schools were studied to determine whether conditions could be created that produced greater student membership and academic engagement as well as more positive outcomes of achievement and lower dropout rates. After two years in a five-year program, four tentative findings have emerged.

First, in responding to at-risk students, educators in large traditional urban schools tended to add "supplementary" programs to the existing school program. For example, three districts added variations of an extended day program to provide time for extracurricular activities. Although the New Futures schools had implemented a wide variety of programs by the second year, by and large these did not alter the "fundamental" characteristics and regularities of school, and these supplementary programs generally have not proved powerful

enough to increase the membership and engagement of most targeted students. In part, the reliance on supplementary programs was rooted in beliefs that students were at risk primarily because of family and community pathologies and that the schools should remediate and treat these problems directly so that students could then be more successful in school.

Unlike the alternative schools that had set out to create a different school environment, the New Futures schools retained most of their traditional school characteristics. While programs involving an extended school day, individual success plans for students, in-school suspension rooms, and early morning tutoring probably served some students well, the impact on social relations between students and teachers and the curriculum were limited or nonexistent. With basic social and academic experiences of students unchanged in school, neither membership nor academic engagement were enhanced. Not surprisingly, dropout rates and academic achievement remained unaffected.

A second finding was that even those few programs that offered fundamental change and were powerful enough to have impact on at-risk students did not lead to school-wide changes that affected all at-risk students. These interventions targeted specific groups of students judged to be most at risk and thus many others were not affected. In part, this was because educators tended to believe comprehensive school-wide changes were not needed. Again, the perception was that some portion of students was suffering from deficits and pathologies, and the main task was to identify these students and "fix" them so that they could re-enter the mainstream school. For example, one district offered a highly structured programmed learning laboratory that altered substantially students' typical classroom experience. The program offered a different kind of curriculum and also held out the possibility of "accelerated promotion" for students who had previously been retained in grade. But the program was restricted to about sixty of the nearly one thousand students in each middle school and had no impact on the mainstream structure or culture of the school.

A third finding was that policy and structural changes that were introduced to affect the whole school did not lead to changes in the deep culture governing teaching, learning, and adult relations with students. Restructuring tended to be superficial and did not promote membership and engagement. In one district where "clusters" grouped teachers and students into "houses" with the intention of promoting closer relations between students and staff, little actual change has occurred. Social relations tended to remain adversarial and little collaboration occurred among staff to change curriculum and instruction even though opportunities to do so were frequent.

Fourth, changes in the four school systems tended to be conceived and implemented in a "top-down" fashion that minimized the ownership of change among building level staff. Because teachers did not participate in the initiation of various programs, many remained unconvinced about the need for change and uncommitted to the implementation of programs. As a result, new programs for at-risk students lost potency after being introduced. This finding about the ineffectiveness of a largely top-down strategy of change is consistent with a number of other studies during the last two decades.

In addition, we commissioned a study of issues of admission and access for at-risk students to special schools and programs in four cities. Moore and Davenport (1989; in press) found a tendency for schools of choice and magnets to attract concentrations of the

most academically able students, which worsened conditions of teaching and learning in neighborhood high schools. They conclude that schools of choice in the four large urban systems studied work to undermine educational equity for poor, minority and disadvantaged youth.

Methodology

The first study involving fourteen alternative schools utilized qualitative and quantitative methodologies. Each school was visited for about fifteen days over the school year. During the visits observations were recorded of classrooms and other events; interviews were conducted of students, teachers, and administrators. Most schools were visited by more than one observer, but one individual was responsible for writing a case study based on a common set of hypotheses and questions across the sites. In addition, several kinds of quantitative data were gathered such as grades, disciplinary infractions, and attendance. Students in each school were given pre- and posttests in reading and writing and the Wisconsin Youth Survey. The last is an instrument designed to measure social-psychological constructs such as sociocentric reasoning, social bonding to peers, social bonding to school, academic self-concept, negative teacher behavior, perception of opportunity, acceptance of conventional roles, locus of control, and self-esteem. These various data were used to construct case studies of each school that, in turn, became the data base for the final analysis and interpretation of the study that is found in Wehlage et al. (1989).

The methodology for the study of the New Futures Initiative had many similarities with the first. Many of the questions pursued were implications developed from the first study, such as the importance of students developing school membership and academic engagement. However, a number of additional questions about the conception and implementation of restructuring measures were also pursued. Like the first, it combined qualitative and quantitative techniques. Qualitative data were gathered from eight schools, two in each of the four cities. More intensive and systematic observations and interviews were undertaken in this study in comparison with the first. Each of the four cities had a primary researcher based at the University of Wisconsin-Madison who was responsible for conducting his/her own research and supervising local field researchers who were able to make frequent visits to schools. The primary researchers made about six week-long visits to each city during each of the two school years. Along with data provided by the local field researcher, periodic written reports were produced to document the development of the New Futures educational agenda.

Quantitative data were gathered through the management information system that was required of each New Futures school system. Data on students in all of a district's schools were available, including the targeted New Futures students. Definitions and procedures for reporting outcomes like dropout rates were common across all schools as stipulated by the Casey Foundation. Implementation of these definitions and procedures has been monitored as part of the research to guarantee validity and reliability of the data. Ten outcome variables have been monitored including academic achievement, attendance, dropout rates, suspensions, and course failures. In addition, a questionnaire has been used to obtain information about students' views of school, sexual behavior, and employment experiences.

Implications for Policy and Practice

The findings from the two studies indicate that it is possible to develop schools that are successful with a variety of students considered at risk of dropping out. Since it is presumably easier to develop small alternative schools than it is to restructure large comprehensive schools, perhaps part of a restructuring agenda must include the development of small alternatives. While there is no single model of an effective school, there are characteristics that promote a common set of intermediate goals—membership and engagement. As intermediate outcomes they are necessary in order to obtain lower dropout rates and higher student achievement.

Eight recommendations for policy and practice were developed from the two studies; some of these are addressed to schools, others to districts and state education departments.

1. Permanent alternative schools should be established by districts as part of a comprehensive dropout prevention effort. These alternative schools need to be high status organizations with sufficient resources to attract quality staff.

2. In cooperation with state departments of education, districts should develop alternatives that participate in experiments with new curricula for at-risk students.

3. State policy should require each district to establish a management information system that maintains data on a wide range of outcomes related to school effectiveness.

4. Schools should plan programs based on careful analysis of student outcome data.

5. Effective use of data by schools as they consider program development implies a high degree of site-based management. Schools should have sufficient autonomy to generate a sense of ownership and accountability for creating effective practices with at-risk students.

6. Given complementary elements of autonomy and accountability, schools should be assisted by freeing educators from state and district policies that restrict experimentation and entrepreneurship. Currently many schools claim they are prevented from experimenting with curriculum and instruction because of state regulations.

7. Districts and state departments of education should move from an "input" to an "outcome" strategy of accountability. But careful thought needs to go into determining what outcomes will be measured and how they will be measured. For example, academic achievement should be measured less by norm referenced tests and more by authentic performance criteria. The effectiveness of schools should also be measured by other outcomes such as dropout rates, attendance, course failure, suspensions, and retention in grade.

8. School restructuring should include finding ways to use a broad range of community resources. Collaboration among schools, social service providers, institutions of higher

education, and the business community must occur if students are to receive the kind of education needed to be productive citizens and workers.

Implications for Theory and Research

Our continuing research on the New Futures Initiative pursues the question of whether urban systems can restructure schools to serve at-risk students. Our hypothesis is that success depends on the extent to which building level staff can learn to operate under new conditions with new roles and responsibilities that allow them to address educational problems. Initially, we assume that restructuring requires educators to become bold critics of their own system. As critics they need to discuss with their colleagues and superiors a number of key issues. For example, how can the school provide students with an environment that promotes membership and with a curriculum characterized by authentic achievement? The answers to such questions must be developed out of reflection that produces enough consensus to encourage school-wide initiative for change.

Our research suggests that reflection by educators is not enough; it must be accompanied by the opportunity and obligation to act. Many school systems, including those studied as part of New Futures, are organized to minimize the opportunity for teachers to act in solving problems. Educators are generally constrained by a number of factors including state regulations and union contracts and also by the weight of tradition and institutional inertia. To empower educators to respond to educational problems at the building level will probably require redefinition of roles and responsibilities within educational systems.

We also assume that substantially more effective schools require a new relationship between the community and schools. Two major issues that stand in the way of change are additional resources and the political license to act. The power of the community ultimately lies behind the resolution of these issues. In addition to more generous financing, schools need to collaborate with the wealth of resources that already exist. For example, schools need to work with social services in response to students' nonschool problems. Also, there is a need for schools to tap the resources held by business and higher education as they seek to make schools more responsive to the educational needs of students. How to create this collaboration and integration is something that is only just beginning to be explored.

Probably more important is the need for communities to establish a political and moral imperative for restructuring schools. From a moral standpoint, greater attention and commitment is needed in serving the at-risk population in most urban systems. How communities can generate this moral and political authority for change is an issue of primary importance in the decade ahead.

New Futures provides a new institution, the collaborative, that is intended to help establish this moral and political authority. Collaboratives are intended to build a constituency powerful enough to authorize school change and promote greater accountability for the success of at-risk students. As a broadly based community institution, the collaborative is situated to raise issues about coordinating resources, providing for relationships among youth-serving institutions, and establishing new criteria for educational accountability. Whether potential points of conflict between school boards and collaboratives can be resolved is part of the research agenda in the next three years.

Of course, it may be that our hypotheses about bottom-up initiative for change may be unsubstantiated. Research is needed to clarify the extent to which various forms of top-down reform can also bring about change and greater accountability at the school level. It may be that state policy in the form of mandated curricula, more sophisticated high-stakes testing, and accountability assessment as well as various financial inducements will prove to be powerful levers of change. Research should continue to probe the relative strength and balance between strategies of bottom-up and top-down restructuring.

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PROJECT 6. ALTERNATIVE STRUCTURES AND THE QUALITY OF TEACHERS' WORKLIFE

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Main Questions

A key assumption of this research program was that student engagement depends, in large measure, on the degree to which teachers are also engaged in the daily tasks of working with students in and out of classrooms. This assumption, corroborated by research done both in and outside of the Center, implies that a concern with the conditions of teachers' work is not simply a matter of effective personnel management but is central to the task of improving student achievement. This project built on the Center's earlier study of teacher engagement in ordinary high schools (Metz, Hemmings, & Tyree, 1988). Here we examined similar issues and variables, but in schools with alternative structures.

Three main questions directed the work of this program:

1. To what extent does the implementation of alternative structures in schools affect the conditions of teachers' work?

2. How do improved conditions of work affect teachers' commitment to teaching and their subject matter, to their school, and to their students?

3. How do principal support and school culture moderate the effects of restructuring on teacher engagement?

An alternatively structured school was defined as one that had implemented significant and deliberate efforts to achieve the seven characteristics of teachers' work listed below. These aspects of teachers' quality of worklife (TQWL) were derived from a broad review of the literature on quality of worklife and educational reform; they represent the conditions mentioned in questions 1 and 2 above.

1. Respect from relevant adults. This includes faculty peers, administrators in the school and district, parents, and the community at large. Many observers of the current educational scene (both in the U.S. and in other developed countries) point out that it is the lack of respect from parents and administrators, along with public discussions of poorly prepared and underperforming teachers, that has contributed to the demoralization of the teaching force and the reluctance of current students to consider teaching as a career. Interestingly, teachers in many other countries with quite different educational systems, such as Sweden and the Netherlands, have begun to express similar concerns.

2. Participation in decision making. Having influence over decisions that affect both the way in which the school operates and the way work is carried out augments the teachers' sense of control over their work setting. A considerable body of research suggests that, where workers—professional or otherwise—are given genuine opportunities to make decisions about

how to organize and carry out their work, perceived satisfaction, engagement, and performance increase.

3. Frequent and stimulating professional interaction. Collaborative work with peers increases teachers' sense of affiliation with the school and their sense of mutual support and responsibility for the effectiveness of instruction. Collaboration is associated with increased commitment to carry out more substantial (and difficult) innovations that affect instruction. As a number of researchers have indicated, increased sense of community brings important benefits.

4. Frequent accurate feedback, leading to a higher sense of efficacy. Teachers' work is characterized by high levels of uncertainty. Although teachers often indicate that they can tell whether they have succeeded with students, they have few mechanisms for determining their actual impact. Mechanisms that permit teachers to obtain frequent and accurate feedback about the specific effects of their performance on student learning may contribute to teachers' sense of efficacy and thereby motivate more teacher effort.

5. Use of skills and knowledge. Teachers' work is very challenging. The opportunity to experiment and to acquire new skills and knowledge (self-development) over the life-time of a career may be particularly critical in retaining teacher involvement with work and preventing a sense of dull routine. This may require not only high quality inservice and additional formal training that focuses on the elaboration of teaching roles in the classroom, but also the opportunity to perform other roles in the school such as counselor, project leader, mentor, or curriculum developer.

6. Resources to carry out the job. A pleasant, orderly physical working environment is necessary to maintain even minimal commitment. While schools do not need to be luxuriously equipped, they must have sufficient and adaptable resources to support teacher experimentation.

7. Goal congruence. Teachers must feel a connection between their personal goals and values and those of the school as a whole. Where values and goals are not congruent, alienation is likely to result. Teachers and administrators seem to agree on the general goals of cognitive achievement and personal and social development for students, but agreement with the slogans can obscure disagreement over specific curriculum, and administrator and/or teacher behavior can also undermine these goals, which reduces congruence.

Main Findings

1. To what extent does the implementation of alternative structures in schools affect the conditions of teachers' work?

To examine this question, we relied not only on our own data, but also on the case reports of Phase I conventionally structured schools, as well as other recently published reports about the conditions of American high schools. In addition, we examined differences in degree of restructuring among the schools in our sample.

Modest restructuring of schools can have a significant effect on the quality of worklife for most teachers. Differences between the quality of worklife that we observed in the eight case study schools and that reported by Metz and her colleagues in the Phase I research were easily visible. Phase I teachers in nonaffluent communities reported working conditions that were isolating and often alienating, ambiguous in expectation, and unmotivating. In contrast, the teachers in the schools that we studied typically reported that they "wouldn't want to work in any other school." They backed up this general enthusiasm with specific details about what contributed to their satisfaction.

The types of restructuring that appeared to have the most positive effects were those that supported:

- Increased collegial and collaborative work among teachers -- such as changes in scheduling that permitted more teacher meetings during the school day. Teachers valued chances to work on curriculum and other types of school development activities most highly. In those districts that had uniform curricula, the schools in our study negotiated exceptions for themselves, or ignored district rules to develop their own approaches. Thus, restructuring that emphasized school-based curriculum had positive effects on TQWL.

- Enhanced opportunities within the school to use and develop new skills -- such as all-school, teacher-organized inservice activities, teacher mentoring programs, or programs that provided grants to teachers to develop new programs. Programs that drew on the talents of teachers within the school, or used "training of trainer" models so that expertise was developed among the staff, were viewed most positively by teachers. Traditional professional development activities oriented mainly toward individual teachers, such as attending conferences, district-wide inservice, and taking courses were seen as less effective, largely because they were less likely to help whole teams, departments, or schools reach common goals.

- Improved feedback on performance from colleagues and supervisors, particularly efforts to "open the classroom door" by encouraging teachers and administrators to observe classes and discuss teaching, but without formal assessment of teaching. Frequent class visitations occurred, however, in only two of the schools. Teachers in these schools remarked on how easy it was to ask for help from other teachers. In other schools, teachers who took advantage of the enhanced opportunities for feedback were more committed than those who did not. In all of the schools, however, open discussion about practices of good teaching was more frequent than in traditionally structured schools.

These opportunities appeared to be strongly associated with teachers' perceptions that other professionals in the schools shared their own educational goals and values. In other words, increasing opportunities to communicate and share significantly reduced the alienation that Metz and others have observed among both teachers and students in typical high schools.

One surprise of the study was the lack of significance attributed to teachers' formal participation in decision-making. Although all of the schools in our study had some means of involving teachers in decision making, schools that had more elaborate, formal mechanisms

to give teachers a voice in school policy did not seem to be better places for teachers than those that did not. Furthermore, when questioned about these structures, few teachers felt that they were critical. Rather, teachers and administrators defined empowerment more broadly as the need to "ensure that teachers have the resources, training and administrative support to become involved and engaged." As one teacher said, "It is okay to have a traditionally structured high school. That is no problem [for teacher engagement]. However, I personally believe that what really satisfies a teacher is the opportunity to speak out . . . we speak out, we're free to critique something, we're free to give advice, to pat each other on the back."

Teachers and administrators did, however, point to the need to institutionalize philosophical commitment to increasing teacher influence by creating steering committees, allocating release time for teachers to become involved in serious ways, having administrative "open door policies," and having decentralized budgets that can support teacher suggestions and ideas. There was consistent emphasis on the need to "provide opportunities for teachers to make important instructional decisions" through collaborative decision making. However, the type of empowerment that was most satisfying took the form of broad informal influence over the school, rather than the formal, delegated right to participate in specific types of decisions.

2. **How do improved conditions of work affect teachers' commitment to teaching and their subject matter, to their school, and to their students?**

Our qualitative analysis identified four distinctive types of engagement.

- Engagement with the school as a social unit. This form of engagement creates a sense of community and personal caring among adults within the schools and facilitates integration between teachers' personal life and worklife.

- Engagement with students as unique whole individuals rather than as "empty vessels to be filled." This form of engagement seems to motivate teachers to respond to students undergoing personal crises, or to be more sensitive and aware of adolescent development. It is believed to be particularly important for retention of at-risk students.

- Engagement with the academic goals of the school. Teachers may be socially integrated and care for students yet fail to generate an atmosphere of high academic expectations.

- Engagement with the body of knowledge needed to carry out effective teaching. In secondary schools, teachers must be energized to access and incorporate in the curriculum new material from changing subject fields. In addition, teachers must be energized to keep up with instructional and pedagogical innovations, to improve the excitement of the classroom environment.

A quantitative analysis of survey data did not distinguish among these dimensions, but, considering engagement as a combination of these factors, we found that teacher quality of worklife was positively associated with teacher engagement (approximately one quarter of the

variance in teacher engagement is explained by the TQWL variables). This was corroborated by interview and observational data. Four quality of worklife variables seemed to stand out as critical for teacher engagement: respect (which we view as the "first among equals" in affecting teacher commitment), opportunities for collaborative work, opportunities to use and develop new skills, and a sense of goal congruence.

3. How do principals and school culture affect teacher commitment?

The principal emerged as more critical than we had predicted. In each of the schools, there was either historically or currently a principal who had helped teachers to redesign the dominant restructuring program. The principal, to a great extent, set the tone for a sense of respect for the professional work of teachers. And, our study suggests that where teachers are treated with respect—and, in turn, treat students with respect—teacher quality of worklife is high even where there is little other evidence of significant restructuring. Conversely, teachers who do not feel respected by administrators, other teachers, and students are caught up in a work environment that cannot be fulfilling no matter how many other opportunities are available to them.

Principals—whether the original change agent or a successor—worked in many ways to buffer teachers from regulations or external demands that would distract their attention from teaching and learning. They worked to ensure that minimally adequate resources would be available, and they consciously tried to be simultaneously nurturing and demanding. Teachers often reported that their principal inspired them because of a willingness to take risks, particularly by confronting poor teaching practices and negative educational influences in the community. In addition, the principals consistently supported a caring environment for students.

This last point reinforces the importance of school culture. The eight schools were consistently and very strongly characterized by a "culture of caring" for students that emphasized not only respect for them as individuals, but also a concern about their personal lives both in and outside the school. The climate of a number of these high schools was deliberately more like a middle school than a typical high school. Many structures (such as study advisory programs) existed that were intended to increase the frequency of personal, informal contact between teachers and students.

Methodology

The eight schools chosen for the study demonstrated significant changes in the conditions affecting teachers' work that had been in place for at least three years. Special efforts were made to locate schools serving poor and minority children. In selecting schools, we tried to maximize variety in the community context, in the socioeconomic and racial mixture of students, and in the kinds of alternative structures that were being implemented. Among the eight were urban schools in low-income areas, suburban schools of mixed race and socioeconomic status, a semirural school, and an affluent middle class school. Each is briefly described.

AMPHITHEATER HIGH SCHOOL, located in Tucson, enrolls 2500 students in grades 9-12. It enrolls a large cross-section of urban and suburban families. Through the

incentives of grants, "venture capital," and an "Innovation Center," teachers have been developing new programs for their students and themselves, such as a three-period block for intensive study and a media program that offers an interdisciplinary approach to learning. Most teacher-developed curricula are team taught. Amphi also sponsors a career ladder program, a peer observation program, and a small administrative assistant program that allows teachers to work half their time teaching and half in administration.

ARTESIA HIGH SCHOOL serves 2000 9-10th graders from southeastern Los Angeles county. A school alive with diversity, Artesia enrolls students from Hispanic, Filipino, Southeast Asian, black, and white families. Twenty to thirty percent are from disadvantaged families. They have implemented a wide range of renewal efforts that include a 32-member Key Planners group, a School Improvement Council, seven Mentor and Instructional Resource Teachers, an increase in departmental decision making, and much staff development conducted by and for teachers.

THE BAILEY ALTERNATIVE SCHOOL is a grades 7-12 school that accepts students from anywhere inside the Jackson, Mississippi, school district on a first come, first serve basis. The majority of the 600 students are black, and many come from families that are poor. Bailey teachers are committed to a philosophy of open student-centered education. The school has been encouraging teachers to work together to try new ways of teaching and to participate more in school decisions. Bailey teachers take part in a Shared Governance Committee that gives teachers an equal voice in a consensus system of hiring decisions and school policy making.

CENTRAL PARK EAST SECONDARY SCHOOL is a grades 7-12 school in New York's District #4--Spanish Harlem. A "choice school," it has no entrance requirement other than a desire to attend the program and serves 450 mostly Hispanic and black students from the neighborhood. Each day is organized around one Humanities block, one Math/Science block, and one Advisory block. Teachers work in block teams, which meet weekly for 2-3 hours. Consistent with its philosophy of "teacher as generalist" to maximize teacher-student relationships, CPESS has very few specialists, no counsellors, and no deans.

FAIRDALE HIGH SCHOOL is in Jefferson County, Kentucky. Most students come from working- and middle-class families (some hard hit by unemployment), but 35% of the students (mostly minorities) are bussed in from the west side of Louisville. The school enrolls around 1150 students in grades 9-12. In 1986 Fairdale teachers voted to join the Geens Professional Development Academy. Since then they have initiated a faculty steering committee, teacher guided assistance periods, an academic/technical minimagnet, a ninth-grade bridge program, a faculty "advance" (versus a "retreat") and other programs.

FLATHEAD HIGH SCHOOL is situated in Kalispell, in northwest Montana, and serves 1450 10-12th graders. Flathead serves a very broad range of students, from those of professional families that live in town, to the children of farming and logging families that live thirty miles away. Flathead has had a long tradition of what we now call site-based management. Teachers have been able to participate in decision making both at the department level and at the district level through district-wide committees. Most recently, Flathead teachers have voted to reassemble a teacher advisory team. They are also involved in significant curriculum redesign to reduce the number of electives and student tracking.

SOUTHFIELD HIGH SCHOOL, situated in a northwest suburb of Detroit, has 1700 students in grades 9-12. Over the last decade the school has shifted from serving mostly white to mostly black middle-class families. It did so without experiencing significant disruptions in climate, achievement, or teacher commitment to the school. The school's emphasis is on empowering both teachers and students. Teachers have been involved in an impressive spectrum of affective education projects, and all teachers participate in school decision making through a faculty senate.

WESTSIDE HIGH SCHOOL serves 1500 students from the western suburbs of Omaha in grades 9-12. While offering a broad curriculum, Westside focuses on college prep. For over twenty years Westside has built its program around many of the reform ideas currently being discussed. Many classes are team taught; it uses a nontraditional schedule; and it encourages one-on-one work between teachers and students by providing a network of media centers and labs where teachers and students can work when not in class. Teachers at Westside are involved in decision making at the course, department, and school level through teacher teams. They have also been involved in long range planning.

Survey, interview, and observational data were collected during approximately 11 days of on-site work at each school. An initial one-day visit was made by a staff member to gather preliminary material and to prepare for the main site visit. During this day, interviews were held with students, faculty and the principal. Later, on a one-week site visit, two staff members gathered data through observing 16 classes (4 each of math, science, English, and social studies, covering high, middle, and lower track classes where relevant). Each of the 16 teachers was interviewed for approximately an hour. Department chairs for all major departments were interviewed for an hour as well. Two group interviews were held with a cross-section of students, as well as two group interviews with teachers who had the same "prep period" and who were not part of the observational data collection. The principal was "shadowed" for a day and interviewed informally during that time. Additional individuals were interviewed as appropriate, and the site visitors attended all faculty meetings or other important events that occurred during the week. The product of the site visit was a case report, in addition to transcriptions of the individual teacher interviews.

Implications for Practice

A number of key implications for practice can be drawn:

1. Restructuring of certain types can significantly improve teachers' perceived working conditions and, consequently, their commitment to their school, their teaching, and their students.

2. The impacts of formal restructuring, such as school-site management, career ladders, or development of schools-within-schools, may be felt most profoundly in those schools where teachers' working conditions are now the least rewarding—in demoralized urban schools, and in nonurban settings where the community does not automatically reinforce high levels of commitment to and achievement in the school. Restructuring can help to break the "iron law of social class" by which teachers are presumed inevitably to find greater satisfaction in working with advantaged, highly motivated students.

3. There are many effective ways to restructure. No single model stands out in this study, although all of the schools with the highest teacher quality of worklife had made serious efforts to grapple with issues of how to bring teachers together for professional growth and collaborative work.

4. Many of the structural changes that proved most critical to improving teachers' work assumed school-site autonomy. While this study did not make significant efforts to examine district policies, we were struck by the degree to which these schools existed in environments that promoted school-based development—or, alternatively, negotiated autonomy in district settings that were more centralized.

5. Revolutionary structural changes are not always necessary. Although the schools in the study that had the most innovative structures also had exceptionally high teacher quality of worklife, some of the least restructured (in terms of the formal programs that we examined) were also high in TQWL and commitment.

6. Changes in climate, culture, and leadership are as critical as formal restructuring. While structural changes send important symbolic messages about what the school should be, and create environments in which teachers have the resources of time and support for innovation and improvement, they must also nurture and reflect broader changes in values and human relationships in the schools. When teachers and students believe that they are working in a caring and stimulating environment, school-specific structural changes can evolve to fit specific needs and preferences of the school.

Implications for Theory and Further Research

The study has contributed to theory in several ways.

1. It defined a framework for the investigation of teachers' work—the teacher quality of worklife dimensions. The dimensions improve discussions of teachers' worklife by identifying aspects of work that (a) can be compared across schools and countries and (b) can be changed through administrative, structural, and human relations interventions.

2. It verified the framework through both qualitative interviews and survey measures. The data collection process suggested some refinements in the initial TQWL formulation—for example, that respect was a precondition for other quality of worklife factors, and that feedback and sense of efficacy, which were initially assumed to be interchangeable dimensions, were, in fact, separate. Nevertheless, the framework is largely supported as both meaningful to teachers and predictive of teacher engagement.

3. It located key characteristics of alternatively structured schools that help to account for the higher levels of TQWL and engagement. Our initial model suggested that factors other than commonly discussed devices for restructuring (such as teacher empowerment, site-based management or teacher accountability) might be critical. We did not pre-identify the structures, leadership, or cultural features of schools that might contribute to effective restructuring but let these emerge during the field work and data analysis. We identified some specific principal roles (such as modeling risk-taking for teachers and alternative modes of buffering teachers' work from disruption) and features of school culture

(such as caring) that contribute to raising the effectiveness of schools as workplaces. Future research can begin to investigate these more systematically.

4. It suggested alternative models of teacher professionalism. The study has challenged some of the current assumptions about the nature of professionalism among teachers. Rather than assuming that professionalizing teachers' work means granting more autonomy and specialization, we found that teachers in these schools articulated an alternative professional model that incorporated less specialization, greater caring, and more emphasis on collective responsibility rather than autonomy. Our findings are tentative since they emerged inductively as part of the qualitative field work. The notion of an alternative model for teacher professionalism needs further investigation in studies of teachers' work.

A number of critical issues arose during the study that, because they were not fully anticipated, require additional investigation. Among these are:

- The importance of "cultures of caring." We identified the existence of caring cultures in these schools and were able to document some of the characteristics that set them apart from more typical schools. However, because of the relatively brief site visits and the lack of focus on culture as a primary construct, the identification of key values, norms, structures and leadership to sustain these positive cultures, and to integrate them with high achievement standards, is an important area for further investigation.

- The role of school context. The focus of the study was on the school rather than on the total context. While we were able to note differences in district relationships between the schools, and the impact that they had on teachers' quality of worklife, the nature of school-district relationships in restructuring schools requires additional investigation from the school's perspective. Another important contextual issue is the school's relation to its surrounding community. In the eight schools with alternative structures we found heightened sensitivity and willingness to "bring the community in," particularly in lower socioeconomic settings. Investigations of how restructured schools relate to their communities is essential for understanding how "schools that are different" can persist over longer periods of time.

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DISSEMINATION

Center Publications

Mailing List. The Center's mailing list numbers approximately 4900 and comprises a diverse national audience of practitioners, researchers, professional educational organizations, deans of colleges and universities, education writers and editors, labs and Centers, ERIC clearinghouses, Chief State School Officers, and policymakers (both state and federal).

Center newsletters (11) and resource bulletins (8) have been distributed at no charge to the entire mailing list.

Research Syntheses. Twelve research syntheses, listed below, were publicized in newsletters of professional educational organizations, as well as in Center newsletters and resource bulletins. They were sold at cost through the Center's Document Service (total sold was over 5400); a total of approximately 1500 complimentary copies was distributed to professional educational organizations.

Bennett, S. (1987, Fall). New dimensions in research on class size and academic achievement. 458 sold.

Blank, R. (1989, Fall). Educational effects of magnet high schools. 140 sold.

Bryk, A. S., & Driscoll, M. E. (1988, Fall). The high school as community: Contextual influences, and consequences for students and teachers. 190 sold.

Conrad, D., & Hedin, D. (1989, Fall). High school community service: A review of research and programs. 375 sold.

Curry, L. (1990, Spring). Learning styles in secondary schools: A review of instruments and implications for their use. 395 sold.

Gamoran, A., & Berends, M. (1987, Fall). The effects of stratification in secondary schools: Synthesis of survey and ethnographic research. 534 sold.

Keating, D. P. (1988, Fall). Adolescents' ability to engage in critical thinking. 158 sold.

Newmann, F. M., & Thompson, J. A. (1987, Fall). Effects of cooperative learning on achievement in secondary schools: A summary of research. 1,663 sold.

Peterson, K. D. (1989, Spring). Secondary principals and instructional leadership: Complexities in a diverse role. 211 sold.

Slavin, R. E. (1990, Spring). Achievement effects of ability grouping in secondary schools: A best-evidence synthesis. 712 sold.

Steinberg, L., Brown, B. B., Cider, M., Kaczmarek, N., & Lazzaro, C. (1988, Fall). Noninstructional influences on high school student achievement: The contributions of parents, peers, extracurricular activities, and part-time work. 258 sold.

Stevenson, R. B. (1987, Fall). Staff development for effective secondary schools: A synthesis of research. 402 sold.

Newsletters and Resource Bulletins. The following newsletters and resource bulletins were published by the Center, mailed to everyone on the mailing list at no charge, and kept in circulation through frequent requests for back issues. Newsletters and resource bulletins were also sent to school districts in quantity for inservices and other staff needs when supply permitted. All newsletters and resource bulletins were edited by Anne Turnbaugh Lockwood.

What does it mean to be at risk? Center newsletter, Fall 1986.

Discipline. Center resource bulletin, Fall 1986.

Is higher order thinking possible in high school? Center newsletter, Spring 1987.

School-business partnerships. Center resource bulletin, Spring 1987.

Standardized testing: Problem or solution? Center newsletter, Fall 1987.

Support groups in high schools. Center resource bulletin. Fall 1987.

Moral education? Center newsletter, Spring 1988.

Cooperative learning. Center resource bulletin, Spring 1988.

Choice in urban schools: Who benefits? Center newsletter. Fall 1988.

Student recognition programs. Center resource bulletin, Fall 1988.

Keeping at-risk youth in school: Diverse programs, common themes. Center newsletter, Spring 1989.

Writing across the curriculum. Center resource bulletin, Spring 1989.

Peer influences and academic achievement. Center newsletter, Fall 1989.

"I have a dream." Center newsletter, Fall 1989.

Service learning. Resource bulletin, Spring 1990.

Tracking and ability grouping. Center newsletter, Spring 1990.

Restructuring and the quality of teachers' worklife. Center newsletter, Fall 1990.

Authentic work: Curriculum knowledge and student participation. Center newsletter, Fall 1990.

Bibliography. The Center published a periodically updated Bibliography of Research on Secondary Education. The final Bibliography was published in Spring 1990 and was an annotated version numbering 128 pages. The Center distributed more than 1,500 bibliographies to the public and to professional educational organizations.

Evaluation of Publications. At the recommendation of the Center's National Advisory Panel, an evaluation was conducted of publications to assess their impact on our audiences. This focused on newsletters, the bibliography, and research syntheses and consisted of postage-paid postcards for readers to complete and return to the Center. Readers of the newsletter provided the largest response. 153 cards were returned, representing 45% administrators, 32% researchers/professors, 8% teachers, and 14% others. Approximately 80% rated the quality of newsletters excellent; 20% good; 0% fair or poor. All respondents said they would recommend newsletters to colleagues. Written comments on the newsletter were consistently positive. Sixty-two percent of readers rated the bibliography excellent; 1% as very good; 32% good; 2% fair. Responses to the 8 research syntheses numbered only 31, an insufficient basis for any conclusions.

Publications by Center Authors

Center staff had a total of 114 articles, chapters, or books published or accepted for publication. They are listed by project area in Appendix A. Approximately 66 appeared in journals; 48 are books, monographs, or chapters in books. These publications are about equally divided between journals and books intended for academic audiences and journals and books intended for practitioner audiences.

Presentations

Center staff have made approximately 125 presentations to groups that included the American Educational Research Association, the Stanford Schools Collaborative (Palo Alto, CA), Northwest Association of Schools and Colleges, Wingspread (Greater Milwaukee Committee), Phi Delta Kappa, Association for Supervision and Curriculum Development, Society for Research in Child Development, Wisconsin State Reading Association, University of Michigan, North Central Association of Colleges and Schools, Learning Disabilities Center of Northwestern University, Minnesota Association of Independent Schools, National Council for the Social Studies, South Carolina Association of Colleges for Teacher Education, National Center for Effective Schools Research and Development, Illinois Association of School Boards, and the National Association of Secondary School Principals. We estimate that approximately 9300 people have been reached through these presentations.

National Leadership

Center staff provided national leadership in advising, consulting, and presentations to groups that included the American Association of School Administrators, AASA Higher Education Committee, American Education Finance Association, Illinois Association of School Boards, Association of Supervision and Curriculum Development, National Association of Secondary School Principals, Council of Chief State School Officers, Coalition of Essential Schools, Conference on Choice and Control (Madison, WI), Organization of Research Centers, Phi Delta Kappa, Northeast Regional Laboratory, state of South Dakota's Commission on At-Risk Youth, Wisconsin State Competency Test Committee, Education Commission of States, National Council of Teachers of English, Learning Disabilities Center of Northwestern University, Center for Civic Education (Los Angeles), Council for the Advancement of Citizenship (Washington, DC).

MANAGEMENT PROCEDURES

The main administrative staff consisted of the Center Director (Newmann), Associate Director (Wehlage), and Dissemination Coordinator (Turnbaugh Lockwood). Principal investigators shaped the direction of the research through collegial review and collective decision-making. Beyond review procedures with OERI, the Center used several strategies to maximize quality control:

1. A National Advisory Panel of distinguished administrators, policymakers, researchers, and practitioners advised the Center on a yearly basis and conducted two formal evaluations. Participants are listed in Appendix B.

2. A network consisting of a principal and teacher from seven high schools met on a yearly basis (from 1985-1989) to advise the research staff on the significance of planned research and the utility of results and also offered opportunities to conduct pilot studies. Participating schools are listed in Appendix B.

3. External reviews from researchers and practitioners were obtained prior to the release of final deliverable products.

4. The dissemination policy emphasized publication of research results through publications of existing research and practitioner organizations, rather than through the Center itself.

APPENDIX A: PUBLICATIONS LIST

BEST COPY AVAILABLE

PROJECT 1: CLEARINGHOUSE ON ACADEMIC ACHIEVEMENT

Research Syntheses (available from Center Document Service, WCER, 1025 W. Johnson St., Madison, WI 53706. Telephone: 608/263-4214)

Bennett, S. (1987, Fall). New dimensions in research on class size and academic achievement.

Blank, R. (1989, Fall). Educational effects of magnet high schools.

Bryk, A. S., & Driscoll, M. E. (1988, Fall). The high school as community: Contextual influences, and consequences for students and teachers.

Conrad, D., & Hedin, D. (1989, Fall). High school community service: A review of research and programs.

Curry, L. (1990, Spring). Learning styles in secondary schools: A review of instruments and implications for their use.

Gamoran, A., & Berends, M. (1987, Fall). The effects of stratification in secondary schools: Synthesis of survey and ethnographic research.

Keating, D. P. (1988, Fall). Adolescents' ability to engage in critical thinking.

Newmann, F. M., & Thompson, J. A. (1987, Fall). Effects of cooperative learning on achievement in secondary schools: A summary of research.

Peterson, K. D. (1989, Spring). Secondary principals and instructional leadership: Complexities in a diverse role.

Slavin, R. E. (1990, Spring). Achievement effects of ability grouping in secondary schools: A best-evidence synthesis. (ERIC No. ED 322 565)

Steinberg, L., Brown, B. B., Cider, M., Kaczmarek, N., & Lazzaro, C. (1988, Fall). Noninstructional influences on high school student achievement: The contributions of parents, peers, extracurricular activities, and part-time work.

Stevenson, R. B. (1987, Fall). Staff development for effective secondary schools: A synthesis of research.

Annotated Bibliography

National Center on Effective Secondary Schools. (1990, Spring). Bibliography of research related to secondary education. Madison, WI: National Center on Effective Secondary Schools.

PROJECT 2: NONINSTRUCTIONAL INFLUENCES ON ADOLESCENTS' ACHIEVEMENT

Published

Brown, B. B. (1988). The vital agenda for research on extracurricular influences: A reply to Holland and Andre. Review of Educational Research, 58, 107-111.

Brown, B. B. (1989). The role of the peer group in adolescents' adjustment to secondary school. In T. Berndt & G. Ladd (Eds.), Peer relationships in child development (pp. 188-215). New York: Wiley.

Brown, B. B. (1990, May). How to help students succeed in school—beyond the academics. Tips for Principals. Reston, VA: National Association of Secondary School Principals.

Brown, B. B., Lohr, M. J., & Trujillo, C. M. (1990). Multiple crowds and multiple lifestyles: Adolescents' perceptions of peer group characteristics. In R. E. Muuss, (Ed.), Adolescent behavior and society: A book of readings (pp. 30-36). New York: Random House.

Brown, B. B., & Steinberg, L. (1990, March). Skirting the "brain-nerd" connection: Academic achievement and social acceptance. The Education Digest, 55(7), 57-60.

Greenberger, E., & Steinberg, L. (1986). When teenagers work: The psychological and social costs of adolescent employment. New York: Basic Books.

Steinberg, L., & Elman, J. D. (1987). Adolescent responsibility, parent-child relations, and school performance. Madison, WI: National Center on Effective Secondary Schools. (ERIC No. ED 303 253)

Publications In Press

Brown, B. B. (in press). Peer groups and peer cultures. In S. S. Feldman & G. R. Elliott (Eds.), At the threshold: The developing adolescent. Cambridge, MA: Harvard University.

Brown, B. B., Lamborn, S. D., & Newmann, F. M. (forthcoming). "You live and you learn." The place of school engagement in the lives of teenagers. In F. M. Newmann (Ed.), Student engagement and achievement in American high schools. New York: Teachers College Press.

Lamborn, S. D., Mounts, N. S., Brown, B. B., & Steinberg, L. (forthcoming). Noninstructional influences on academic engagement: Family, peers, extracurricular participation, and parttime work. In F. M. Newmann (Ed.), Student engagement and achievement in American high schools. New York: Teachers College Press.

Steinberg, L. (in press). Interdependency in the family: Autonomy, conflict, and harmony. In S. S. Feldman & G. R. Elliot (Eds.), At the threshold: The developing adolescent. Cambridge, MA: Harvard University Press.

Steinberg, L., & Dornbusch, S. M. (in press). Negative correlates of part-time employment during adolescence: Replication and elaboration. Child Development.

Steinberg, L., Elmen, J. D., & Mounts, N. S. (in press). Authoritative parenting, psychosocial maturity, and academic success among adolescents. Child Development.

PROJECT 3: THE STRATIFICATION OF LEARNING OPPORTUNITIES IN MIDDLE AND HIGH SCHOOL

Published

Gamoran, A. (1987). Instruction and the effects of schooling. Madison, WI: National Center on Effective Secondary Schools. (ED 303 435)

Gamoran, A. (1987). Organization, instruction, and the effects of ability grouping: Comment on Slavin's "Best-evidence synthesis." Review of Educational Research, 57, 341-345.

Gamoran, A. (1987). The stratification of high school learning opportunities. Sociology of Education, 60, 135-155.

Gamoran, A. (1988). Resource allocation and the effects of schooling: A sociological perspective. In D. H. Monk & J. Underwood (Eds.), Microlevel school finance: Issues and implications for policy (pp. 207-232). Ninth Annual Yearbook of the American Educational Finance Association. Cambridge, MA: Ballinger.

Gamoran, A. (1989). Measuring curriculum differentiation. American Journal of Education, 97, 129-143.

Gamoran, A. (1990). Instructional organizational practices that affect equity. In H. P. Baptiste, Jr., J. E. Anderson, J. Walker de Felix, & H. C. Waxman, (Eds.), Leadership, equity, and school effectiveness (pp. 155-172). Newbury Park, CA: Sage Publications.

Gamoran, A. (1990). The variable effects of tracking: Productivity and inequality in American high schools. Madison, WI: National Center on Effective Secondary Schools. (ERIC NO. ED 027 869)

Gamoran, A., & Mare, R. D. (1989). Secondary school tracking and educational inequality: Compensation, reinforcement, or neutrality? American Journal of Sociology, 94, 1146-1183.

Gamoran, A., & Berends, M. (1987). The effects of stratification in secondary schools: Synthesis of survey and ethnographic research. Review of Educational Research, 57, 4, 415-435.

Knapp, J. V. (1991, Winter). Classy questions: Raising student achievement through authentic discourse. Illinois English Bulletin, 78, 42-55.

Nystrand, M. (1986). The structure of written communication: Studies in reciprocity between writers and readers. Orlando, FL: Academic Press.

Nystrand, M. (1987). The context of written communication. In R. Horowitz & S. J. Samuels (Eds.), Understanding oral and written discourse (pp. 197-214). Orlando, FL: Academic Press.

Nystrand, M. (1989). A social-interactive model of writing. Written Communication, 6(1), 66-81.

Nystrand, M. (1990). How texts mean. Contemporary Psychology, 35, 303.

Nystrand, M. (1990). On teaching writing as a verb rather than a noun: Research on writing for high school English teachers. In G. Hawisher & A. Soter (Eds.), On literacy and its teaching: Issues in English education. Albany: SUNY Press.

Nystrand, M. (1990). Sharing words: The effects of readers on writing development. Written Communication, 7(1), 3-24.

Nystrand, M. (1990). Text properties are objective: Text meaning is not. A reply to David Olson. Contemporary Psychology, 35, 302-303.

Nystrand, M., & Brandt, D. (1989). Response to writing as a context for learning to write. In C. Anson (Ed.), Writing and response: Theory, practice, and research. Urbana: National Council of Teachers of English.

Publications In Press

Gamoran, A. (in press). Schooling and achievement: Additive versus interactive models. In S. W. Raudenbush & J. D. Willms (Eds.), International Studies of Schooling from a Multilevel Perspective. Orlando, FL: Academic Press.

Gamoran, A. (in press). Social factors in education. In M. Atkin (Ed.), Encyclopedia of education research, (6th ed.). New York: Macmillan.

Gamoran, A., & Nystrand, M. (forthcoming). Engagement, instruction and ability grouping in ninth-grade English. In F. M. Newmann (Ed.), Student engagement and achievement in American high schools. New York: Teachers College Press.

Nystrand, M. (in press). English language education. In M. Atkin (Ed.), The encyclopedia of education research (6th ed). New York: Macmillan.

Nystrand, M., & Gamoran, A. (forthcoming). Classrooms as discourse communities and their effects on academic achievement: A study of ninth-grade literature instruction. In F. M. Newmann (Ed.), Student engagement and achievement in American high schools. New York: Teachers College Press.

Nystrand, M., & Gamoran, A. (in press). Instructional discourse, student engagement and literature achievement. Research in the Teaching of English.

Nystrand, M., & Gamoran, A. (in press). Student engagement: When recitation becomes conversation. In H. Waxman & H. Walberg (Eds.), Contemporary Research on Teaching. Berkeley: McCutcheon.

Oakes, J., Gamoran, A., & Page, R. N. (in press). Curriculum differentiation: Opportunities, outcomes, and meanings. In P. W. Jackson (Ed.), Handbook of research on curriculum. New York: Macmillan.

PROJECT 4: HIGHER ORDER THINKING IN THE HIGH SCHOOL CURRICULUM

Published

Newmann, F. M. (1988, January). Can depth replace coverage in the high school curriculum? Phi Delta Kappan, 69, 345-348.

Newmann, F.M. (1988, April). Can depth replace coverage in the high school curriculum? (Translated in French) Prospectives, 24, 80-84. (Montreal, Quebec).

Newmann, F.M. (1988, May). Depth or coverage in the school curriculum? Education Digest, 53, 8-11.

Newmann, F.M. (1988, May). Higher order thinking in the high school curriculum. NASSP Bulletin, 72, 58-64.

Newmann, F.M. (1988, October). Another view of cultural literacy: Go for depth. Social Education, 52, 432-436.

Newmann, F.M. (1988, December). Higher order thinking in high schools. The Education Digest, 54, 23-28.

Newmann, F. (1989). Learning in high schools. [Interview with Doug Buehl (Ed.)]. WSRA Journal, 33(3), 5-14.

Newmann, F. M. (1989, October). Higher order thinking transcends instruction in specific subjects. R&D Preview, 4(1), 12.

Newmann, F. M. (1990, October). A test of higher order thinking in social studies: Persuasive writing on constitutional issues using the NAEP approach. Social Education, 54, 369-373.

Newmann, F.M. (1990). Student engagement in academic work: Expanding the perspective on secondary school effectiveness. In J. Bliss & W. Firestone (Eds.), Rethinking effective schools. New Brunswick: Rutgers University Press.

Newmann, F.M. (1990). Qualities of thoughtful social studies classes: An empirical profile. Journal of Curriculum Studies, 22, 253-275.

Newmann, F.M. (1990). Higher order thinking in teaching social studies: A rationale for the assessment of classroom thoughtfulness. Journal of Curriculum Studies, 22, 41-56.

Newmann, F. M. (1990). Linking restructuring to authentic student achievement. Phi Delta Kappan, 72, 458-463.

Newmann, F. M., Onosko, J., & Stevenson, R. B. (1990, Summer). Staff development for higher order thinking: A synthesis of practical wisdom. Journal of Staff Development, 11, 48-55.

Onosko, J. (1989). Comparing teachers' thinking about promoting students' thinking. Theory and Research in Social Education, 17, 174-195.

Onosko, J. (1990). Comparing teachers' instruction to promote students' thinking. Journal of Curriculum Studies, 22, 443-461.

Schrag, F. (1987, December). Is high school the place to teach thinking? Education Digest, 53, 16-19.

Schrag, F. (1988). Thinking in school and society. London: Routledge.

Schrag, F. (1989, Summer). Are there levels of thinking? Teachers College Record, 90, 529-533.

Stevenson, R. B. (1987). Staff development for effective secondary schools: A synthesis of research. Teaching and Teacher Education, 3, 233-248.

Stevenson, R. B. (1990). Engagement and cognitive challenge in thoughtful social studies classes: A study of student perspectives. Journal of Curriculum Studies, 22, 329-341.

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McCarthy, C., & Schrag, F. (in press). Departmental and principal leadership in promoting higher order thinking. Journal of Curriculum Studies.

Newmann, F. M. (forthcoming). Higher order thinking and prospects for classroom thoughtfulness. In F. Newmann (Ed.), Student engagement and achievement in American high schools. New York: Teachers College Press.

Newmann, F. M. (in press). The prospects for classroom thoughtfulness in high school social studies. In C. Collins (Ed.), Building the quality of thinking in and out of our schools in the twenty-first century. Hillsdale, NJ: Erlbaum.

Newmann, F.M. (in press). The assessment of discourse in the social studies. In H. Berlak (Ed.), Assessing achievement: Toward the development of a new science of education testing. Albany: SUNY Press.

Newmann, F. M. (in press). Higher order thinking in the teaching of social studies: Connections between theory and practice. Informal reasoning and education. D. Perkins, J. Segal, & J. Voss (Eds.), Hillsdale, NJ: Erlbaum.

Onosko, J., & Stevenson, R. B. (in press). Effective staff development practices for higher order thinking. In A. Costa (Ed.) Developing minds: A resource book for teaching thinking. (rev. ed.). Alexandria, VA: ASCD.

PROJECT 5: RESEARCH ON PROGRAMS AND POLICIES AFFECTING AT-RISK YOUTH

Published

Lesko, N. (1988). Symbolizing society: Stories, rights, and structures in a Catholic high school. Philadelphia: Falmer Press.

Moore, D. R., & Davenport, S. (1989, February). High school choice and students at risk. Equity and Choice, 5(1), 5-10.

Moore, D. R., & Davenport, S. (1989, August). Cheated again: School choice and students at risk. The School Administrator, 46(7), 12-15.

Moore, D. R., & Davenport, S. (1989, September). High school choice and students at risk. Education Digest, 55(1), 7-10.

Smith, G. A. (1989, February). The media academy: Engaging students in meaningful work. Educational Leadership, 46(5), 38-39.

Wehlage, G. G. (1986, Fall). At-risk students and the need for high school reform. Education, 107(1), 18-28.

Wehlage, G. G. (1989). Dropping out: Can schools be expected to prevent it? In L. Weis, E. Farrar, & H. Petie (Eds.), Dropouts from schools: Issues, dilemmas and solutions (pp. 1-19). Albany: SUNY Press.

Wehlage, G. G. (1989). Engagement, not remediation or higher standards. In J. Lakebrink (Ed.), Children at risk. Springfield, IL: Charles A. Thomas.

Wehlage, G. G., & Rutter, R. A. (1986, Spring). Dropping out: How much do schools contribute to the problem? Teachers College Record, 87, 374-392.

Wehlage, G. G., Rutter, R. A., Smith, G. A., Lesko, N., & Fernandez, R. R. (1989). Reducing the risk: Schools as communities of support. Philadelphia: Falmer Press.

Wehlage, G., Rutter, R., & Turnbaugh, A. (1987). Evaluation of a model program for at-risk students. In Dropouts, pushouts, and other casualties. Bloomington, IN: Center on Evaluation, Development, Research, Phi Delta Kappa HOT Topics Series.

Wehlage, G., Rutter, R., & Turnbaugh. (1987, March). A program model for at-risk high school students. Educational Leadership, 44(6), 70-73.

Publications in Press

Smith, G. A. (in press). Program planning for at-risk students. In L. West (ed.), Effective strategies for dropout prevention of at-risk youth. Rockville, MD: Aspen Press.

Moore, D. R., & Davenport, S. (in press). School choice: The new improved sorting machine. In W. Boyd & H. Walberg (Eds.), Choice in education: Issues and politics. Chicago: National Society for the Study of Education.

Smith, G. A. (in press). At-risk dropout prevention programs. In J. W. Keefe (Ed.), Instructional Leadership Handbook. Reston, VA: National Association of Secondary School Principals.

Wehlage, G.. G., & Smith, G. (forthcoming). Engagement, restructuring and at-risk students. In F. M. Newmann (Ed.), Student engagement and achievement in American high schools. New York: Teachers College Press.

PROJECT 6: ALTERNATIVE STRUCTURES AND THE QUALITY OF TEACHERS' WORKLIFE

Published

Louis, K. S. (1989). The role of the school district in school improvement. In M. Holmes, K. Leithwood, & D. Mussella (Eds.), Educational policy for effective schools. New York: Teachers College Press.

Louis, K. S. (1990). Social values and the quality of teacher worklife. In M. McLaughlin (Ed.), Teaching in secondary schools. New York: Teachers College Press.

Louis, K. S., & Dentler, R. A. (1988). Knowledge use and school improvement. Curriculum Inquiry, 18, 32-62.

Louis, K. S., & Loucks-Horsley, S. (Eds.) (1990). Supporting school improvement: A comparative perspective. Leuven, Belgium: Acco.

Louis, K. S., & Miles, M. B. (1990). Improving the urban high school: What works and why. New York: Teachers College Press.

Louis, K. S., & Smith, B. (1990). Teachers' work: Current issues and prospects for reform. In P. Reyes (Ed.), Teachers and their workplace: Commitment, performance and productivity. Newsbury Park, CA: Sage.

Metz, M. H. (1990). Real school: A universal drama amid disparate experience. In D. E. Mitchell & M. E. Goertz (Eds.), Education politics for the new century: The 20th anniversary yearbook of politics of education association (pp. 75-91). NY: Falmer Press.

Metz. M. H. (1990). How social class differences shape the context of teachers' work. In M. McLaughlin, J. Talbert, & N. Bascia (Eds.), The contexts of teaching in secondary schools: Teachers' realities (pp. 40-107). NY: Teachers College Press.

Metz, M.H. (1988, November). Some missing elements in the reform movement. Educational Administration Quarterly, 24(4), 54-56.

Metz, M.H. (1988, January). In education, magnets attract controversy. Issues '88, a special issue of NEA Today, 6(6), 54-56.

Metz, M.H. (1987, January). Teachers' pride in craft, school subcultures, and societal pressures. Educational Policy, 1(1).

Metz, M. H. (1990). Magnet schools and the reform of public schooling. In W. L. Boyd & H. J. Walberg (Eds.), Choice in education: Potential and problems (pp. 123-147). Berkeley, Ca: McCutchan.

Miles, M. B., & Louis, K. S. (1990). Mustering the will and skill for change. Educational Leadership, 47, 57-61.

Rossmiller, R.A. (1987). Achieving equity and effectiveness in schooling. Journal of Education Finance, 13, 561-577.

Rossmiller, R. A. (1988). Project on the effects of the school as a workplace on teachers' engagement: Field study on principals' management of schools to affect teacher engagement. Madison, WI: National Center on Effective Secondary Schools. (ERIC No. ED 316 9443)

Rossmiller, R. A. (1988). Opportunities unlimited: A guide for Wisconsin school board members (7th ed.). Winneconne: Wisconsin Association of School Boards.

Rossmiller, R. A. (1988). Review of "A place called school" by John Goodlad. Economics of Education Review, 7, 365-66.

Rossmiller, R. A. (1990). As nearly uniform as practicable: An historical review of Wisconsin's equalized aid formula. Madison: Wisconsin Association of School District Administrators.

Rossmiller, R. A. (1990). Federal funds: A shifting balance. In J. K. Underwood & D. A. Verstegen (Eds.), The impact of litigation and legislation on public school finance (pp. 1-25). New York: Harper & Row (Ballinger Division).

Rossmiller, R., & Cohn, E. (1987). Research on effective schools: Implications for less developed countries. Comparative Educational Review, 31, 377-399.

Rutter, R. A. (1986, April/May). A profile of the profession. Social Education, 50, 252-255.

In Press

Louis, K. S., & Miles, M. B. (in press). Toward effective urban high schools: The importance of planning and coping. In W. Firestone, J. Bliss, & C. Richards (Eds.), Rethinking effective schools. New York: Praeger.

Louis, K. S., & Smith, B. (forthcoming). Breaking the iron law of social class: The renewal of teachers' professional status and engagement. In F. M. Newmann (Ed.), Student engagement and achievement in American high schools. New York: Teachers College Press.

Rossmiller, R. A. (in press). Financing schools. In M. J. Atkin (Ed.), Encyclopedia of education research (6th ed.). New York: Macmillan.

Rossmiller, R. A. (in press). Resource use and student achievement in elementary schools. In W. T. Hartman & W. Boyd (Eds.), Resource allocation and productivity in education. Westport: CT: Greenwood Press.

ACADEMIC ACHIEVEMENT PROGRAM AREA

Archbald, D., & Newmann, F.M. (1988). Beyond standardized tests: Assessing authentic academic achievement in the secondary school. Reston, VA: National Association of Secondary School Principals.

Archbald, D. A., & Newmann, F. M. (in press). Approaches to assessing authentic academic achievement. In H. Berlak (Ed.), Assessing achievement: Toward the development of a new science of educational testing. Albany: SUNY Press.

Berlak, H. (Ed.). (in press). Assessing achievement: Toward the development of a new science of education testing. Albany: SUNY Press.

Gaddy, G. D. (1986). Order and achievement in the American high school. Madison, WI: National Center on Effective Secondary Schools. (ED # 303 434)

Gaddy, G. D. (1988, August). High school order and academic achievement. American Journal of Education, 96(4).

Newmann, F. M., & Archbald, D. (1990). Organizational performance of schools: The assessment of authentic academic achievement. In P. Reyes (Ed.), Employee commitment, performance, and productivity in educational organizations. Beverly Hills, CA: Sage Publications.

Newmann, F. M., & Archbald, D. (in press). The nature of authentic achievement. In H. Berlak (Ed.), Assessing achievement: Toward the development of a new science of educational testing. Albany: SUNY Press.

SCHOOL CHANGE PROGRAM AREA

Marsh, D. D., & Bowman, G. A. (1988, March). State-initiated top-down versus bottom-up reform in secondary school. Madison, WI: National Center on Effective Secondary Schools. (ERIC No. 303 432)

Marsh, D. D., & Bowman, G. A. (1989). State-initiated top-down versus bottom-up reform. Educational Policy, 3, 195-216.

OTHER PUBLICATIONS BY CENTER STAFF

The following newsletters and resource bulletins were edited by Anne Turnbaugh Lockwood:

What does it mean to be at risk? Center newsletter, Fall 1986.

Discipline. Center resource bulletin, Fall 1986.

Is higher order thinking possible in high school? Center newsletter, Spring 1987.

School-business partnerships. Center resource bulletin, Spring 1987.

Standardized testing: Problem or solution? Center newsletter, Fall 1987.

Support groups in high schools. Center resource bulletin. Fall 1987.

Moral education? Center newsletter, Spring 1988.

Cooperative learning. Center resource bulletin, Spring 1988.

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APPENDIX B: CENTER ADVISORY GROUPS

BEST COPY AVAILABLE

NATIONAL ADVISORY PANEL ROSTER
December 1985-December 1990

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Madison, Wisconsin 53711
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HAMILTON HIGH SCHOOL
6215 West Warnimont Street
Milwaukee, Wisconsin 53220
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MARKESAN HIGH SCHOOL
Markesan, Wisconsin 53946
(414) 398-2373

MEMORIAL HIGH SCHOOL
201 South Gammon Road
Madison, Wisconsin 53705
(608) 833-2020

RIVERSIDE HIGH SCHOOL
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Milwaukee, Wisconsin 53211
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WELLS HIGH SCHOOL
936 North Ashland
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